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ANNUAL CALENDAR

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MONTREAL.

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AMENDED CHARTER IN 1852.

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W. PETERSON, M.A. (Edin. and Oxon), LL.D. (St. Andrews).
Principal and Professor of Classics. 889 Sherbrooke Street.

ALEXANDER JOHNSON, M.A., LL.D. (Dublin), D.C.L. (Bishops), F.R.S.C., Senior Moderator (Math. and Phys.), and late Classical Scholar Trin. Coll., Dub.
Vice-Principal and Dean of the Faculty of Arts, and Peter Redpath Professor of Pure Mathematics. 895 Sherbrooke Street.

REV. J. CLARK MURRAY, LL.D. (Glasgow), F.R.S.C.
Professor of Logic, and John Frothingham Professor of Mental and Moral Philosophy. 20 McTavish Street.

BERNARD J. HARRINGTON, M.A., Ph.D. (Yale), LL.D., F.G.S., F.R.S.C.
Macdonald Professor of Chemistry and Mineralogy, Lecturer in Assaying, and Director of Chemistry and Mining Building. 295 University Street.

CHARLES E. MOYSE, B.A. (London).
Molson Professor of English Language and Literature. 802 Sherbrooke Street.

D. P. PENHALLOW, B.Sc. (Boston Univ.), M.Sc., F.R.S.C., F.R.M.S.
Macdonald Professor of Botany. McGill College.

REV. DANIEL COUSSIRAT, B.A., B.D. (Université de France), D.D. (Queen's), Officier d'Instruction Publique.
Professor of Hebrew and Oriental Literature. 171 Hutchison Street.

A. JUDSON EATON, M.A. (Harvard), Ph.D. (Leipsic).
Associate Professor of Classics. 34 Arlington Ave., Westmount.

JOHN COX, M.A. (Cantab.), F.R.S.C., late Fellow Trin Coll., Cambridge
Macdonald Professor of Physics and Director of Physics Building. 241 University Street.

FRANK D. ADAMS, M.A.Sc., Ph.D. (Heidelberg), F.G.S.A., F.R.S.C.
Logan Professor of Geology and Palæontology. 243 Mountain Street.

C. W. COLBY, M.A. and Ph.D. (Harvard).
Kingsford Professor of History. 127 Bishop Street.

FRANK CARTER, M.A. (Oxon).
Mills Professor of Classics. McGill College.

ERNEST W. MCBRIDE, M.A. (Cantab.), D.Sc. (Lond.), late Fellow of St. John's College, Cambridge.
Strathcona Professor of Zoology. 76a Crescent Street.

ERNEST RUTHERFORD, B.A. (Cantab.), M.A. (Univ. N.Z.), M.Sc., F.R.S.C.
Macdonald Professor of Physics. 157 St. Famille Street.

J. WALLACE WALKER, M.A. (St. Andrews), Ph.D. (Leipsic).
Macdonald Professor of Chemistry. McGill College.

PAUL T. LAFLEUR, M.A.
David J. Greenshields Associate Professor of English. 58 University St.

HERMANN WALTER, M.A. (Edin.), Ph.D. (Munich).
Lecturer in Modern Languages. McGill College.

LEIGH R. GREGOR, B.A., Ph.D. (Heidelberg).
Lecturer in Modern Languages. 139 Bayle Street.

(The above Professors and Lecturers, along with the "William Dow Professor of Political Economy," to be appointed shortly, constitute the Faculty of Arts.)

Other Officers of Instruction.

Nevil Norton Evans, M.A.Sc.
Assistant Professor of Chemistry. 217 Milton Street.

H. M. Tory, M.A.
Lecturer in Mathematics. 197 Mance Street.

Carrie M. Derick, M.A.
Lecturer in Botany and Demonstrator in the Botanical Laboratory. McGill College.

Rev. J. L. Morin, M.A.
Sessional Lecturer in French. 65 Hutchison Street.

S. B. Slack, M.A. (Oxon).
Lecturer in Classics. McGill College.

E. T. Lambert, B.A. (Lond.).
Lecturer in Modern Languages. 130 Crescent Street.

H. N. Sanders, B.A.
Lecturer in Classics and Sanskrit. 329 Prince Arthur Street.

Hilda Diana Oakeley, M.A., Warden, Royal Victoria College.
Lecturer in Philosophy and Ancient History. Royal Victoria College.

John W. Cunliffe, M.A. & D.Litt. (Lond.).
Lecturer in English Language and Literature. The Marlborough, 210 Milton Street.

Howard T. Barnes, D.Sc.
Lecturer in Physics. 14 Lorne Avenue.

J. Stafford, B.A. (Toronto), Ph.D. (Leipsic).
Lecturer in Zoology. McGill College.

Susan E. Cameron, M.A.
Resident Tutor in English. Royal Victoria College.

Harriet Brooks, B.A.
Non-Resident Tutor in Mathematics. 460 Argyle Ave., Westmount.

Marie-Louise Milhau.
Resident Tutor in French and German. Royal Victoria College.

S. B. Leacock, B.A. (Toronto).
Special Lecturer in Political Science. McGill College.

J. W. A. Hickson, M.A., Ph.D. (Halle).
Tutor in Philosophy. 272 Mountain Street.

R. Tait McKenzie, B.A., M.D.
Medical Examiner and Instructor in Physical Culture. 913 Dorchester Street.

John P. Stephen.
Instructor in Elocution. 875 Dorchester Street.

Clara Lichtenstein.
(Diplomée of the Conservatory of Buda-Pesth), Resident Instructor in Music. Royal Victoria College.

.....
Demonstrator in Physics.

O. E. Leroy, B.A.
Demonstrator in Geology. McGill College.

R. K. McClung, B.A.
Demonstrator in Physics. McGill College.

W. Scott Hutchinson, M.Sc.
Demonstrator in Chemistry. 81 Arlington Ave., Westmount.

James Henderson, B.Sc. (St. Andrews), Ph.D. (Munich).
Senior Demonstrator in Chemistry. 33½ Metcalfe Street.

G. Rupert Duncan, B.Sc.
Demonstrator in Physics. McGill College.

M. Violette Lover, B.A., M.Sc.
Demonstrator in Chemistry. 67½ Victoria Street.

Vendla M. Holmstrom.
Instructor in Gymnastics. Royal Victoria College.

F. Soddy, B.A. (Oxon).
Demonstrator in Chemistry. McGill College.

A. Douglas McIntosh, B.Sc. (Dalhousie), A.M. (Cornell).
Demonstrator in Chemistry. McGill College.

Charles F. Lindsay, B.A. (Dalhousie).
Demonstrator in Chemistry. McGill College.

A. G. Grier, B.Sc.
Demonstrator in Physics. McGill College.

Edgar Browning, M.A. & M.D. (Cantab.), M.R.C.S., L.R.C.P.
Lecture-Assistant in Chemistry. 49 McGill College Avenue.

Louis C. Graton, B.Sc. (Cornell).
Lecture-Assistant in Chemistry. McGill College.

With the foregoing are associated :

F. P. Walton, B.A. (Oxon), LL.B. (Edin.).
Gale Professor of Roman Law and Lecturer on Constitutional Law. 552 Pine Avenue.

C. H. McLeod, Ma.E., F.R.S.C.
Superintendent of Meteorological Observatory. McGill College.

Stewart Henbest Capper, M.A. (Edin.), A.R.I.B.A., A.R.C.A.
Macdonald Professor of Architecture and Lecturer on Art and Archæology. 131 Stanley Street.

APPLIED SCIENCE.

Henry T. Bovey, M.A. (Cantab.), M. Inst. C.E., LL.D., D.C.L. (Bishop's), F.R.S.C., late Fellow Queen's College, Cambridge.
Dean of the Faculty of Applied Science, and William Scott Professor of Civil Engineering and Applied Mechanics. Sunnandene, Ontario Avenue.

Bernard J. Harrington, M.A., LL.D., Ph.D. (Yale), F.G.S., F.R.S.C.
Macdonald Professor of Chemistry and Mineralogy, Lecturer in Assaying, and Director of Chemistry and Mining Building. 295 University Street.

C. H. McLeod, Ma.E., F.R.S.C.
Professor of Surveying and Geodesy, and Lecturer on Descriptive Geometry, Supt. of Meteorological Observatory. Observatory, McGill College.

G. H. Chandler, M.A.
Professor of Applied Mathematics. 32 Lorne Avenue.

John Cox, M.A. (Cantab.), late Fellow Trin. Coll., Cambridge.
Macdonald Professor of Physics and Director of Physics Building. 241 University Street.

Frank D. Adams, M.A.Sc., Ph.D. (Heidelberg), F.G.S.A., F.R.S.C.
Logan Professor of Geology and Palæontology. 243 Mountain Street.

Stewart Henbest Capper, M.A. (Edin.), A.R.I.B.A., A.R.C.A.
Macdonald Professor of Architecture. 131 Stanley Street.

J. Bonsall Porter, E.M. & Ph.D. (Columbia), M. Inst. C.E., F.G.S.A.
Macdonald Professor of Mining and Metallurgy. 392 Pine Avenue.

Ernest Rutherford, B.A. (Cantab.), M.A. (Univ. N.Z.), M.Sc.
Macdonald Professor of Physics. 157 St. Famille Street.

J. Wallace Walker, M.A. (St. Andrews), Ph.D. (Leipsic).
Macdonald Professor of Chemistry. McGill College.

R. B. Owens, E.E. (Columbia), M.Sc., M.A.I.E.E., Tyndall Fellow of Columbia University.
Macdonald Professor of Electrical Engineering. 210 Milton Street.

R. J. Durley, B.Sc. (London), Ma.E., A.M. Inst. C.E., M. Am. Soc. M.E.
Thomas Workman Professor of Mechanical Engineering and Lecturer on Thermodynamics. 131 Stanley Street.

(The above Professors constitute the Faculty of Applied Science.)

Other Officers of Instruction.

Richard S. Lea, Ma.E.
Assistant Professor of Civil Engineering and Lecturer in Mathematics. 913 Dorchester Street.

Henry F. Armstrong.
Assistant Professor of Freehand Drawing and Descriptive Geometry. 345 Prince Arthur Street.

E. G. Coker, B.A. (Cantab.), D.Sc. (Edin.), A.M. Inst. C.E.
Assistant Professor of Civil Engineering. 323 Pine Avenue.

Nevil Norton Evans, M.A.Sc.
Assistant Professor of Chemistry. 217 Milton Street.

Homer M. Jaquays, B.A., M.Sc., A.M. Can. Soc. C.E., A.M. Am. Soc. M.E., A.M.A.I.E.E.
Assistant Professor of Mechanical Engineering. 862 Sherbrooke Street.

F. W. Draper, S.B. (Mass. Inst. Tech.).
Assistant Professor of Metallurgy. 294 Pine Avenue.

J. G. G. Kerry, Ma.E., A.M. Can. Soc. C.E.
Lecturer in Surveying and Descriptive Geometry. 149 Durocher Street.

Louis Herdt, Ma.E., E.E. (Elec. Inst. Montefiore, Belgium), A.M.I.E.E., A.M. Can. Soc. C.E.
Lecturer in Electrical Engineering. 23 Montée du Zouave.

Howard T. Barnes, D.Sc.
Lecturer in Physics. 14 Lorne Avenue.

E. S. S. Mattice, B.A.Sc.
Special Lecturer on Building Construction. 4278 Western Avenue.

M. C. J. Beullac, B.Sc. (Univ. of France).
Special Lecturer on Building Construction. 172 Logan Park West.

James W. Fraser, B.Sc.
Demonstrator in Electrical Engineering. McGill College.

R. K. McClung, B.A.
Demonstrator in Physics. McGill College.

O. E. LeRoy, B.A.
Demonstrator in Geology. McGill College.

James Henderson, B.Sc. (St. Andrews), Ph.D. (Munich).
Senior Demonstrator in Chemistry. 33½ Metcalfe Street.

W. Scott Hutchinson, M.Sc.
Demonstrator in Chemistry. 81 Arlington Ave., Westmount.

G. Rupert Duncan, B.Sc.
Demonstrator in Physics. McGill College.

E. Andrewes, B.Sc.
Demonstrator in Mining. 32 McTavish Street.

S. J. Allen, B.Sc.
Demonstrator in Civil Engineering. McGill College.

F. Soddy, B.A. (Oxon).
Demonstrator in Chemistry. McGill College.

A. DOUGLAS MCINTOSH, B.Sc. (Dalhousie), A.M. (Cornell).
Demonstrator in Chemistry. McGill College.

CHARLES F. LINDSAY, B.A. (Dalhousie).
Demonstrator in Chemistry. McGill College.

H. P. ARCHIBALD, B.A.Sc.
Demonstrator in Mechanical Engineering. McGill College.

ARTHUR G. GRIER, B.Sc.
Demonstrator in Physics. McGill College.

EDGAR BROWNING, M.A. & M.D. (Cantab), M.R.C.S., L.R.C.P.
Lecture-Assistant in Chemistry. 49 McGill College Avenue.

L. O. HOWARD, B.Sc.
Demonstrator in Metallurgy. McGill College.

LOUIS C. GRATON, B.Sc. (Cornell).
Lecture-Assistant in Chemistry. McGill College.

With the foregoing are associated :

CHARLES E. MOYSE, B.A. (Lond.).
Molson Professor of English Language and Literature.
802 Sherbrooke Street.

JOHN W. CUNLIFFE, M.A. & D.Litt. (Lond.).
Lecturer in English Language and Literature.
The Marlborough, 210 Milton Street.

LAW.

(Macdonald Foundation.)

F. P. WALTON, B.A. (Oxon), LL.B. (Edin.).
Dean of the Faculty of Law and Gale Professor of Roman Law. 552 Pine Avenue.

ARCHIBALD MCGOUN, M.A., B.C.L., K.C.
Professor of Civil Law. Dunavon, Westmount & 181 St. James St.

THOMAS FORTIN, D.C.L.
Professor of Civil Law. 97 St. James Street.

W. DEM. MARLER, B.A., D.C.L.
Professor of Civil Law. 288 Peel Street.

HON. CHARLES J. DOHERTY, D.C.L.
Professor of Civil Law. 282 Stanley Street.

EUGENE LAFLEUR, B.A., D.C.L., K.C.
Professor of International Law. N.Y. Life Building, Place d'Armes.

HON. CHARLES PEERS DAVIDSON, M.A., D.C.L.
Professor of Criminal Law. Place Viger Hotel.

R. C. SMITH, B.C.L., K.C.
Professor of Commercial Law. 185 St. James Street.

(The above constitute the Faculty of Law.)

OTHER OFFICERS OF INSTRUCTION.

PERCY C. RYAN, B.C.L.
Lecturer on Civil Procedure. Canada Life Building, St. James St.

AIME GEOFFRION, B.C.L.
Lecturer on Obligations. 20 Bayle Street.

GORDON W. MACDOUGALL, B.A., B.C.L.
Lecturer on Civil Procedure. N.Y. Life Building, Place d'Armes.

WYATT G. JOHNSTON, M.D.
Lecturer on Medical Jurisprudence. 74 Shuter Street.

MEDICINE.

ROBERT CRAIK, M.D., LL.D.
Dean of the Faculty of Medicine, and Strathcona Professor of Hygiene and Public Health. 887 Sherbrooke Street.

GILBERT P. GIRDWOOD, M.D., F.R.S.C., F.R.C.S. (Lond.).
Professor of Chemistry, Faculty of Medicine. 111 University Street.

THOMAS G. RODDICK, M.D., LL.D. (Edin.).
Professor of Surgery. 80 Union Avenue.

WILLIAM GARDNER, M.D.
Professor of Gynæcology. 899 Sherbrooke Street.

FRANCIS J. SHEPHERD, M.D.
Professor of Anatomy. 152 Mansfield Street.

FRANK BULLER, M.D.
Professor of Ophthalmology and Otology. 123 Stanley Street.

JAMES STEWART, M.D.
Professor of Medicine and Clinical Medicine. 285 Mountain Street.

GEORGE WILKINS, M.D.
Professor of Medical Jurisprudence and Lecturer in Histology. 898 Dorchester Street.

D. P. PENHALLOW, B.Sc. (Boston Univ.), M.Sc., F.R.S.C., F.R.M.S.
Professor of Botany. McGill College.

T. WESLEY MILLS, M.A., M.D., F.R.S.C.
Joseph Morley Drake Professor of Physiology. McGill College.

J. CHALMERS CAMERON, M.D.
Professor of Midwifery and Diseases of Infancy. 941 Dorchester St.

ALEX. D. BLACKADER, B.A., M.D.
Professor of Pharmacology and Therapeutics, and Lecturer on Diseases of Children. 236 Mountain Street.

R. F. RUTTAN, B.A. (Toronto), M.D., F.R.S. Can.
Professor of Practical Chemistry, and Registrar Medical Faculty. 1018 Sherbrooke Street.

JAMES BELL, M.D.
Professor of Clinical Surgery. 873 Dorchester Street.

J. GEORGE ADAMI, M.A., M.D. (Cantab. and McGill), F.R.S.E., late Fellow of Jesus College, Cambridge.
Strathcona Professor of Pathology and Director of Medical Museum. 331 Peel Street.

H. S. BIRKETT, M.D.
Professor of Laryngology. 123 Stanley Street.

F. G. FINLEY, M.B. (London), M.D.
Assistant Professor of Medicine and Associate Professor of Clinical Medicine. 1013 Dorchester Street.

H. A. LAFLEUR, B.A., M.D.
Assistant Professor of Medicine and Associate Professor of Clinical Medicine. 58 University Street.

GEO. E. ARMSTRONG, M.D.
Associate Professor of Clinical Surgery. 320 Mountain Street.

(The above Professors constitute the Faculty of Medicine.)

OTHER OFFICERS OF INSTRUCTION.

T. J. W. BURGESS, M.D., F.R.S.C.
Professor of Mental Diseases. Medical Superintendent Protestant Hospital for Insane. Drawer 2381, Montreal.

WYATT G. JOHNSTON, M.D.
Assistant Professor of Hygiene and Lecturer on Medical Jurisprudence in the Faculty of Law. 74 Shuter Street.

C. F. MARTIN, B.A., M.D.
Assistant Professor of Medicine and Clinical Medicine.
33 Durocher Street.

W. S. MORROW, M.D
Lecturer in Physiology.
82 Union Avenue.

JOHN M. ELDER, B.A., M.D.
Lecturer in Surgery and Clinical Surgery.
4201 Sherbrooke Street, Westmount.

J. J. GARDNER, M.D.
Lecturer in Ophthalmology.
211 Peel Street.

J. A. SPRINGLE, B.A., M.D.
Lecturer in Anatomy.
1237 Dorchester Street.

F. A. L. LOCKHART, M.B. (Edin.).
Lecturer in Gynæcology.
38 Bishop Street.

A. E. GARROW, M.D.
Lecturer in Surgery and Clinical Surgery.
2726 St. Catherine Street.

W. F. HAMILTON, M.D.
Lecturer in Clinical Medicine.
287 Mountain Street.

G. GORDON CAMPBELL, B.Sc. (Dalhousie), M.D.
Lecturer in Clinical Medicine.
117 Metcalfe Street.

J. G. MCCARTHY, M.D.
Lecturer in Anatomy.
61 Drummond Street.

D. J. EVANS, M.D.
Lecturer in Obstetrics.
939 Dorchester Street.

N. D. GUNN, M.D.
Lecturer in Histology, Faculty of Medicine, and Lecturer on Materia Medica in the Faculty of Compar. Med. and Vet. Sc.
49 Union Avenue.

J. W. STIRLING, M.B. (Edin.)., F.R.G.S.
Lecturer in Ophthalmology.
28 Durocher Street.

A. G. NICHOLLS, M.A., M.D.
Lecturer in Pathology.
2736 St. Catherine Street.

J. ALEX. HUTCHISON, M.D.
Lecturer in Clinical Surgery.
70 Mackay Street.

W. W. FORD, B.A. (Adelbert Coll.), M.D. (Johns Hopkins).
Fellow in Pathology.
McGill College.

JOHN MCCREA, B.A. & M.D. (Toronto).
Fellow in Pathology.
McGill College.

R. TAIT MCKENZIE, B.A., M.D.
Demonstrator of Anatomy.
913 Dorchester Street.

J. A. HENDERSON, M.D.
Demonstrator of Anatomy.
34 Park Avenue.

J. W. SCANE, M.D.
Demonstrator of Physiology.
4469 St. Catherine Street.

KENNETH CAMERON, B.A., M.D.
Demonstrator of Clinical Surgery.
903 Dorchester Street.

E. J. SEMPLE, B.A. (St. Mary's College), M.D.
Demonstrator of Surgical Pathology.
375 St. Antoine Street.

R. A. KERRY, M.D.
Demonstrator of Pharmacy.
164 Peel Street.

J. J. ROSS, B.A., M.D.
Demonstrator of Anatomy.
679 Wellington Street.

A. E. ORR, M.D.
Demonstrator of Anatomy.
900 Dorchester Street.

H. B. YATES, B.A. (Cantab.), M.D.
Demonstrator of Bacteriology.
257 Peel Street.

A. A. ROBERTSON, B.A., M.D.
Demonstrator of Physiology. 79 St. Matthew Street.

J. D. CAMERON, M.D.
Demonstrator of Gynæcology. 2068 St. Catherine Street.

D. D. MACTAGGART, B.A.Sc., M.D.
Demonstrator of Pathology. 90 Park Avenue.

D. P. ANDERSON, B.A., M.D.
Demonstrator of Pathology. 35 Park Avenue.

S. RIDLEY MACKENZIE, M.D.
Demonstrator of Medicine. 130 Peel Street.

H. D. HAMILTON, M.D.
Demonstrator of Laryngology. 141 Crescent Street.

W. G. M. BYERS, M.D.
Demonstrator of Ophthalmology. 192 Peel Street.

J. T. HALSEY, M.D. (Columbia).
Demonstrator of Pharmacology. 4274 St. Catherine Street.

W. W. CHIPMAN, B.A. (Acadia), M.D. (Edin.), F.R.C.S. (Edin.)
Demonstrator of Gynæcology. 287 Mountain Street.

T. P. SHAW, M.D.
Assistant Demonstrator of Obstetrics. 1260 Dorchester Street.

JAMES BARCLAY, M.D.
Assistant Demonstrator of Obstetrics. 59 Metcalfe Street.

J. A. WILLIAMS, M.D.
Assistant Demonstrator of Bacteriology. 385 St. Antoine Street.

A. T. BAZIN, M.D.
Assistant Demonstrator of Anatomy. 49 Richmond Square.

H. M. CHURCH, M.D.
Assistant Demonstrator of Anatomy. 354 Greene Avenue.

W. G. REILLY, M.D.
Assistant Demonstrator of Anatomy. 51 Park Avenue.

R. A. WESTLEY, M.D.
Assistant Demonstrator of Anatomy. 228 Bishop Street.

H. B. FRASER, B.A., M.D.
Assistant Demonstrator of Histology. 1171 St. Denis Street.

W. M. FISK, M.D.
Assistant Demonstrator of Histology. 49 Prince Arthur Street.

E. R. BROWN, B.A., M.D.
Assistant Demonstrator of Histology. 54 Drummond Street.

D. PATRICK, M.D.
Assistant Demonstrator of Histology. 4186 St. Catherine Street.

A. D. IRVINE, M.D.
Assistant Demonstrator of Clinical Chemistry. 4356 St. Catherine St.

W. K. BROWN, M.D.
Assistant Demonstrator of Clinical Chemistry. 99 University St.

E. A. ARCHIBALD, B.A., M.D.
Assistant Demonstrator of Pathology. 913 Dorchester Street.

COMPARATIVE MEDICINE AND VETERINARY SCIENCE.

DUNCAN MCEACHRAN, F.R.C.V.S., D.V.S.
Dean of the Faculty and Professor of Veterinary Medicine and Surgery. 6 Union Avenue.

MALCOLM C. BAKER, D.V.S.
Professor of Veterinary Anatomy. 6 Union Avenue.

CHARLES MCEACHRAN, D.V.S.
Professor of Veterinary Obstetrics and Diseases of Cattle. 6 Union Avenue.

G. P. GIRDWOOD, M.D.
Associate Professor of Chemistry. 111 Universty Street.

GEORGE WILKNS, M.D.
Associate Professor of Histology. 898 Dorchester Street.

D. P. PENHALLOW, B.Sc. (Boston Univ.), M.Sc., F.R.S.C., F.R.M.S.
Associate Professor of Botany. McGill College.

WESLEY MILLS, M.D., D.V.S.
Associate Professor of Physiology. McGill College.

J. G. ADAMI, M.A., M.D. (Cantab. and McGill), F.R.S.E.
Associate Professor of Pathology. 331 Peel Street.

(The above Professors constitute the Faculty of Comparative Medicine and Veterinary Science.)

OTHER OFFICERS OF INSTRUCTION.

C. F. MARTIN, M.D.
Lecturer in Medicine. 33 Durocher Street.

B. ARNOLD SUDEN, D.V.S.
Lecturer in Materia Medica and Therapeutics. 6 Union Avenue.

CHARLES H. HIGGINS, B.S. (Boston), D.V.S.
Assistant to Professor of Pathology. 6 Union Avenue.

LIBRARY.

CHAS. H. GOUID, B.A.
University Librarian. 862 Sherbrooke Street.

H. MOTT.
Assistant Librarian. 47 St. Famille Street.

Professors Emeriti,

[*Retainng their Rank and Titles, but retired from work.*]

WM. WRIGHT, M.D.
Emeritus Prfessor in the Faculty of Medicine. 84 St. Famile St.

D. C. MACCALLUM, M.D.
Emeritus Prfessor in the Faculty of Medicine. 45 Union Ave.

MATTHEW HUTCHINSON, D.C.L.
Emeritus Prfessor in the Faculty of Law.
434 Elm Ave., Westmount.

HON. J. EMERY ROBIDOUX, D.C.L.
Emeritus Prfessor in the Faculty of Law. 396 St. Denis St.

HON. J. S. C. WURTELE, J.K.B., D.C.L. (Officier d'Instruction Publique).
Emeritus Prfessor in the Faculty of Law. 78 Union Ave.

SEPTEMBER, 1901.

	SUNDAY	
2	Monday	Normal School opens. Meeting of Faculty of Applied Science. Field work in Surveying (Supplemental examination in Surveying, Aug. 31st).
3	Tuesday	
4	Wednesday	
5	Thursday	
6	Friday	
7	Saturday	Meeting of Faculty of Medicine.
8	SUNDAY	
9	Monday	
10	Tuesday	Meeting of Examiners.
11	Wednesday	Matriculation, Exhibition, Scholarship and Supplemental Examinations.
12	Thursday	Examinations continued. Finance Committee.
13	Friday	Examinations continued.
14	Saturday	
15	SUNDAY	
16	Monday	Introductory Lecture in Law. Examinations continued. Engineering Building Committee; Chemistry and Mining Building Committee. Register opens for students in Medicine.
17	Tuesday	Lectures in Law begin. Examinations continued. College Grounds Committee.
18	Wednesday	Examinations continued.
19	Thursday	
20	Friday	Meeting of Governors.
21	Saturday	Matriculation in Veterinary Science.
22	SUNDAY	
23	Monday	Introductory Lecture in Medicine. Meeting of Faculty of Arts.
24	Tuesday	Lectures in Arts, Applied Science, Medicine and Vetrinary Medicine begin.
25	Wednesday	Summer Essays in Applied Science to be sent in.
26	Thursday	
27	Friday	
28	Saturday	
29	SUNDAY	
30	Monday	

OCTOBER, 1901.

1	Tuesday	Exhibition and Supplemental Examinations, Applied Science.
2	Wednesday	Normal School Committee. Meeting of Academic Board.
3	Thursday	Physics Building Committee.
4	Friday	Meeting of Faculty of Arts.
5	Saturday	Meeting of Faculty of Medicine.
6	SUNDAY	Founder's Birthday.
7	Monday	Meeting of Faculty of Applied Science. Museum Committee: Library Committee.
8	Tuesday	
9	Wednesday	Regular Meeting of Corporation. Annual Report to Visitor.
10	Thursday	The William Molson Hall opened, 1862. Finance Committee.
11	Friday	Sports Day.
12	Saturday	
13	SUNDAY	
14	Monday	
15	Tuesday	College Grounds Committee.
16	Wednesday	
17	Thursday	
18	Friday	Meeting of Governors. Meeting of Faculty of Arts
19	Saturday	Register closes for Students in Medicine.
20	SUNDAY	
21	Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
22	Tuesday	
23	Wednesday	
24	Thursday	
25	Friday	
26	Saturday	
27	SUNDAY	
28	Monday	
29	Tuesday	
30	Wednesday	
31	Thursday	New Library opened, 1893.

NOTE.—Meetings of the Faculty of Arts are held at 5 P.M. unless otherwise specified.

NOVEMBER, 1901.

1	Friday	Meeting of Faculty of Arts.
2	Saturday	Meeting of Faculty of Medicine.
3	SUNDAY	
4	Monday	Meeting of Faculty of Applied Science.
5	Tuesday	
6	Wednesday	
7	Thursday	
8	Friday	
9	Saturday	Edvard VII born 1841.
10	SUNDAY	
11	Monday	
12	Tuesday	
13	Wednesday	
14	Thursday	Finance Committee.
15	Friday	Meeting of Governors. Meeting of Faculty of Arts.
16	Saturday	
17	SUNDAY	
18	Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
19	Tuesday	College Grounds Committee.
20	Wednesday	
21	Thursday	
22	Friday	
23	Saturday	
24	SUNDAY	
25	Monday	
26	Tuesday	
27	Wednesday	
28	Thursday	
29	Friday	Meeting of Faculty of Arts.
30	Saturday	

DECEMBER, 1901.

1	SUNDAY	
2	Monday	Meeting of Faculty of Applied Science.
3	Tuesday	
4	Wednesday	Meeting of Academic Board.
5	Thursday	Physics Building Committee.
6	Friday	
7	Saturday	Meeting of Faculty of Medicine.
8	SUNDAY	
9	Monday	Sessional Examinations in Medicine begin. Museum Committee: Library Committee.
10	Tuesday	
11	Wednesday	Regular Meeting of Corporation.
12	Thursday	Finance Committee
13	Friday	Last day of Lectures in Arts.
14	Saturday	
15	SUNDAY	
16	Monday	Christmas Examinations in Arts and Medicine begin. Engineering Building Committee: Chemistry and Mining Building Committee.
17	Tuesday	College Grounds Committee.
18	Wednesday	
19	Thursday	
20	Friday	Meeting of Governors. Autumn term of Faculty of Medicine ends. Last day of Lectures in Law.
21	Saturday	Christmas Vacation begins.
22	SUNDAY	
23	Monday	
24	Tuesday	
25	Wednesday	Christmas-Day.
26	Thursday	
27	Friday	
28	Saturday	
29	SUNDAY	
30	Monday	
31	Tuesday	

1	Wednesday	
2	Thursday	
3	Friday	
4	Saturday	Meeting of Faculty of Medicine. Meeting of Faculty of Arts. (4 p.m.)
5	**SUNDAY**	
6	Monday	Lectures in Arts, Law and Applied Science resumed. Winter term Faculty of Medicine begins. Meeting of Faculty of Applied Science.
7	Tuesday	
8	Wednesday	Normal School Committee.
9	Thursday	Finance Committee.
10	Friday	Meeting of Faculty of Arts.
11	Saturday	
12	**SUNDAY**	
13	Monday	
14	Tuesday	
15	Wednesday	
16	Thursday	
17	Friday	Meeting of Governors.
18	Saturday	
19	**SUNDAY**	
20	Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
21	Tuesday	College Grounds Committee.
22	Wednesday	Queen Victoria died, 1901.
23	Thursday	
24	Friday	Meeting of Faculty of Arts.
25	Saturday	
26	**SUNDAY**	
27	Monday	
28	Tuesday	
29	Wednesday	
30	Thursday	
31	Friday	Theses for M.A. and LL.D. to be sent in.

FEBRUARY, 1902.

1	Saturday	Meeting of Faculty of Medicine.
2	**SUNDAY**	
3	Monday	Meeting of Faculty of Applied Science.
4	Tuesday	
5	Wednesday	Meeting of Academic Board.
6	Thursday	Physics Building Committee.
7	Friday	Meeting of Faculty of Arts.
8	Saturday	
9	**SUNDAY**	
10	Monday	Museum Committee: Library Committee.
11	Tuesday	Regular Meeting of Corporation.
12	Wednesday	Ash Wednesday. No lectures.
13	Thursday	Finance Committee.
14	Friday	
15	Saturday	
16	**SUNDAY**	
17	Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
18	Tuesday	College Grounds Committee.
19	Wednesday	
20	Thursday	
21	Friday	Meeting of Governors. Meeting of Faculty of Arts.
22	Saturday	
23	**SUNDAY**	
24	Monday	Physics and Engineering Buildings opened Feb. 24th, 1893.
25	Tuesday	
26	Wednesday	
27	Thursday	
28	Friday	

2	Saturday	Meeting of Faculty of Medicine.
2	**SUNDAY**	
3	Monday	Meeting of Faculty of Applied Science.
4	Tuesday	
5	Wednesday	Meeting of Academic Board.
6	Thursday	
7	Friday	Meeting of Faculty of Arts.
8	Saturday	
9	**SUNDAY**	
10	Monday	
11	Tuesday	
12	Wednesday	
13	Thursday	Finance Committee.
14	Friday	
15	Saturday	
16	**SUNDAY**	
17	Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
18	Tuesday	College Grounds Committee.
19	Wednesday	
20	Thursday	
21	Friday	Meeting of Governors. Meeting of Faculty of Arts. Reports of Attendance on Lectures. Winter term ends Faculty of Medicine.
22	Saturday	
23	**SUNDAY**	
24	Monday	
25	Tuesday	
26	Wednesday	
27	Thursday	Convocation for Degrees in Veterinary Science. Last day of Lectures in Arts and Applied Science.
28	Friday	Good Friday.
29	Saturday	
30	**SUNDAY**	Easter Sunday.
31	Monday	

APRIL, 1902.

1	Tuesday	Examinations in Arts begin.
2	Wednesday	Normal School Committee.
3	Thursday	Physics Building Committee.
4	Friday	Last day of Lectures in Law.
5	Saturday	Meeting of Faculty of Medicine.
6	**SUNDAY**	
7	Monday	Museum Committee: Library Committee. Meeting of Faculty of Applied Science. Spring term begins, Faculty of Medicine.
8	Tuesday	
9	Wednesday	Regular Meeting of Corporation.
10	Thursday	Finance Committee.
11	Friday	
12	Saturday	
13	**SUNDAY**	
14	Monday	
15	Tuesday	College Grounds Committee.
16	Wednesday	
17	Thursday	
18	Friday	Meeting of Governors.
19	Saturday	
20	**SUNDAY**	
21	Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
22	Tuesday	
23	Wednesday	
24	Thursday	
25	Friday	
26	Saturday	
27	**SUNDAY**	
28	Monday	Graduate Course in Medicine begins.
29	Tuesday	
30	Wednesday	Convocation for Degrees in Arts, Law, and Applied Science.

MAY, 1902.

1 Thursday	Summer Classes in Arts begin. Meeting of Examiners for School Examinations.
2 Friday	
3 Saturday	Meeting of Faculty of Medicine.
4 SUNDAY	
5 Monday	Meeting of Faculty of Applied Science.
6 Tuesday	
7 Wednesday	
8 Thursday	Finance Committee.
9 Friday	
10 Saturday	
11 SUNDAY	
12 Monday	
13 Tuesday	
14 Wednesday	
15 Thursday	
16 Friday	Meeting of Governors.
17 Saturday	
18 SUNDAY	Whit Sunday.
19 Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
20 Tuesday	College Grounds Committee.
21 Wednesday	
22 Thursday	
23 Friday	Lectures end, Faculty of Medicine.
24 Saturday	
25 SUNDAY	Trinity Sunday.
26 Monday	Examinations begin, Faculty of Medicine.
27 Tuesday	
28 Wednesday	
29 Thursday	
30 Friday	Normal School closes.
31 Saturday	

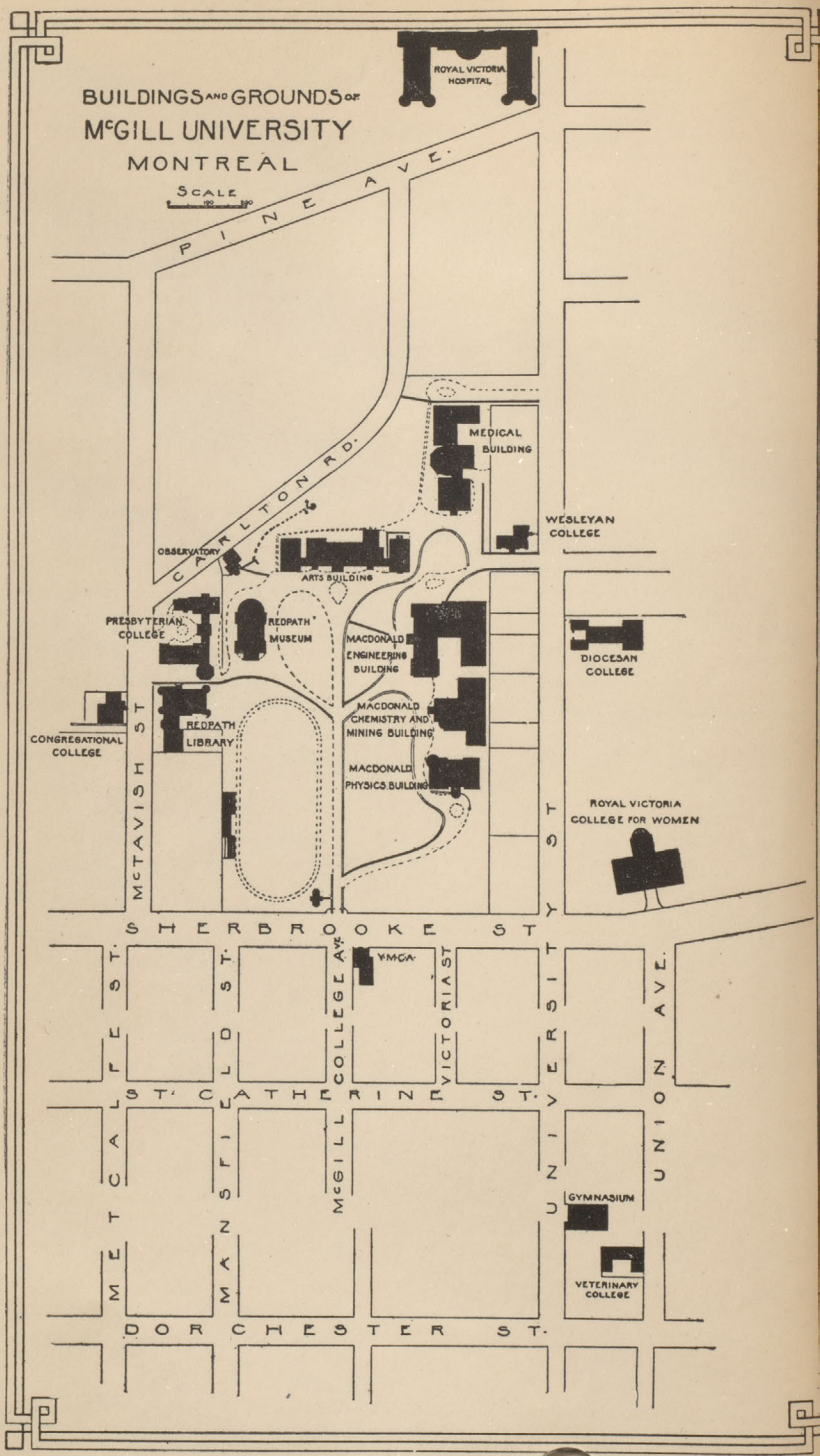
JUNE, 1902.

1 SUNDAY	
2 Monday	
3 Tuesday	
4 Wednesday	Normal School Committee.
5 Thursday	Physics Building Committee.
6 Friday	
7 Saturday	Graduate course in Medicine ends. Meeting of Faculty of Medicine.
8 SUNDAY	
9 Monday	Examinations begin for Matriculation and Associate in Arts. Museum Committee: Library Committee.
10 Tuesday	
11 Wednesday	Regular Meeting of Corporation.
12 Thursday	Finance Committee.
13 Friday	Spring Term ends, Faculty of Medicine. Convocation for degrees in Medicine.
14 Saturday	
15 SUNDAY	
16 Monday	Engineering Building Committee: Chemistry and Mining Building Committee.
17 Tuesday	College Grounds Committee.
18 Wednesday	
19 Thursday	
20 Friday	Meeting of Governors.
21 Saturday	
22 SUNDAY	
23 Monday	
24 Tuesday	
25 Wednesday	
26 Thursday	
27 Friday	
28 Saturday	Summer Classes in Arts end.
29 SUNDAY	
30 Monday	

1	Tuesday	
2	Wednesday	
3	Thursday	
4	Friday	
5	Saturday	Meeting of Faculty of Medicine.
6	SUNDAY	
7	Monday	
8	Tuesday	
9	Wednesday	
10	Thursday	
11	Friday	
12	Saturday	
13	SUNDAY	
14	Monday	
15	Tuesday	
16	Wednesday	
17	Thursday	
18	Friday	
19	Saturday	
20	SUNDAY	
21	Monday	
22	Tuesday	
23	Wednesday	
24	Thursday	
25	Friday	
26	Saturday	
27	SUNDAY	
28	Monday	
29	Tuesday	
30	Wednesday	
31	Thursday	

AUGUST, 1902.

1	Friday	
2	Saturday	
3	SUNDAY	
4	Monday	
5	Tuesday	
6	Wednesday	
7	Thursday	
8	Friday	
9	Saturday	
10	SUNDAY	
11	Monday	
12	Tuesday	
13	Wednesday	
14	Thursday	
15	Friday	
16	Saturday	Peter Redpath Museum opened 1882.
17	SUNDAY	
18	Monday	
19	Tuesday	
20	Wednesday	
21	Thursday	
22	Friday	
23	Saturday	
24	SUNDAY	
25	Monday	
26	Tuesday	
27	Wednesday	
28	Thursday	
29	Friday	
30	Saturday	
31	SUNDAY	


BUILDINGS AND GROUNDS OF
McGILL UNIVERSITY
MONTREAL
SCALE
ROYAL VICTORIA HOSPITAL
PINE AVE.
CARLTON RD.
MEDICAL BUILDING
WESLEYAN COLLEGE
OBSERVATORY
ARTS BUILDING
PRESBYTERIAN COLLEGE
REDPATH MUSEUM
MACDONALD ENGINEERING BUILDING
DIOCESAN COLLEGE
CONGREGATIONAL COLLEGE
REDPATH LIBRARY
MACDONALD CHEMISTRY AND MINING BUILDING
MACDONALD PHYSICS BUILDING
ROYAL VICTORIA COLLEGE FOR WOMEN
McTAVISH ST
UNIVERSITY ST
SHERBROOKE ST
YMCA
PEEL ST.
METCALFE ST.
ST. CLOUD ST.
COLLEGE Av.
McGILL
VICTORIA ST
UNIVERSITY
UNION AVE.
ST. CATHERINE ST.
MANSFIELD
GYMNASIUM
VETERINARY COLLEGE
DORCHESTER ST.

McGill University.

Foundation and Early History.

Almost alone in this respect among Canadian colleges and universities, McGill University owes its origin to a private endowment. Its founder, the Hon. James McGill, from whom the University takes its name, was born on the 6th October, 1744, in Glasgow, Scotland, where he received his early education and training. Emigrating to Canada before the American Revolution, he engaged in the North-West fur trade, then one of the leading branches of business in Canada. Subsequently he settled in Montreal, and, in partnership with his brother, Andrew McGill, became one of its leading merchants, distinguished for his public spirit and his exertions for the advancement of the city. He was lieutenant-colonel and subsequently colonel of the Montreal City Militia; and, in his old age, on the breaking out of the American war of 1812, he became brigadier-general, and was prepared to take the field in defence of his country. He also represented the West Ward of Montreal in the Provincial Legislature, and was afterwards a member of the Legislative and Executive Councils. Cultivating and enjoying the society of the few men of learning then in the colony, he took a special interest in the establishment of an educational system in the Province of Quebec. By his will, bearing date the 8th January, 1811, more than two years before his death, which happened on the 19th December, 1813, he bequeathed his property of Burnside and a sum of £10,000 in money, to found a college in a provincial university, the erection of which had already been provided for by the generosity of the British Government. Three leading citizens of Montreal were among the trustees appointed under his will, who were directed to convey the subject property of the bequest to the Royal Institution for the Advancement of Learning, a body which, in 1802, had been incorporated by the Legislature "for the establishment of Free Schools and the advancement of Learning" in the Province of Quebec. The conditions upon which the property was to be transferred to the Royal Institution for the Advancement of Learning were, mainly, that that Institution should, within ten years after the testator's decease,

erect and establish on his Burnside estate "an University or College, for the purposes of education and the advancement of learning in this Province," and that the college, or one of the colleges, in the University, if established, should "be named and perpetually be known and distinguished by the appellation of McGill College." Owing to persistent opposition by the leaders of one section of the people to any system of governmental education and to the refusal by the Legislature to make the grants of land and money which had been promised, the proposed establishment of the provincial university by the British Government was abandoned.

In so far as the McGill College was concerned, however, the Royal Institution at once took action by applying for a Royal Charter. Such a charter was granted in 1821, and the Royal Institution prepared to take possession of the estate. But, owing to protracted litigation, this was not surrendered to them till 1829. Commencing then the work of teaching with two faculties, Arts and Medicine, the record of the first thirty years of the University's existence is an unbroken tale of financial embarrassment and administrative difficulties. The charter was cumbrous and unwieldy, and unsuited to a small college in the circumstances of this country, and the University, with the exception of its medical faculty, became almost extinct. But after thirty years the citizens of Montreal awoke to the value of the institution which was struggling in its midst. Several gentlemen undertook the responsibility of its renovation, and, in 1852, an amended charter was secured. The Governor-General of Canada for the time being, Sir Edmund Head, became interested in its fortunes, and in 1855, with the advent of a new Principal, an era of progress and prosperity began.

Constitution of the University.

By the amended Charter "the Governors, Principal, and Fellows" of the University are constituted a body politic and corporate, with all the usual rights and privileges of corporate bodies. The supreme authority of the University, however, is vested in the Crown, and is exercised by His Excellency the Governor-General of Canada for the time being as **Visitor.** This is a special and important feature of the constitution, for, while it gives the University an imperial character and removes it at once from any merely local or party influence, it secures the patronage of the head of the political system of the country.

The **Governors** of the University are the members of the Royal Institution for the Advancement of Learning, above mentioned, and in them are vested the management of finances, the passing of University statutes and ordinances, the appointment of professors, and other important duties. Their number is limited to fifteen, and vacancies are filled by the nomination of the remaining members, with the approval of the Visitor. The President of the Board of Governors is, *ex-officio*, Chancellor of the University.

The **Principal** is the academic head and chief administrative officer. He is appointed by the Board of Governors, and is, *ex-officio*, Vice-Chancellor of the University.

The **Fellows** are limited to 43 in number, and are selected with reference to the representation of all the faculties and departments of the University, of affiliated colleges, and of other bodies.

The Governors, Principal, and Fellows, together constitute the **Corporation**, the highest academical body. Its powers are fixed by statute, and include the framing of all regulations touching courses of study, matriculation and graduation, and the granting of degrees.

The Principal, the Deans of the several Faculties, the Professors and Associate Professors, and other members, not exceeding ten in number, of the teaching staff, constitute the **Academic Board** of the University, with the duty of considering such matters as pertain to the interests of the University as a whole, and of making recommendations concerning the same.

The Statutes and Regulations of the University have been framed on the most liberal principles, with the view to affording to all classes of persons the greatest possible facilities for the attainment of mental culture and professional training. In its religious character the University is Protestant, but not denominational, and while all possible attention is given to the character and conduct of students, no interference with their individual views is sanctioned.

Faculties and Courses.

The educational work of the University is carried on in McGill College, the Royal Victoria College for Women, and other University buildings in Montreal, and in affiliated colleges.

The Faculties are five in number :

The Faculty of Arts.—The undergraduate courses of study extend over four sessions of eight months each. In the third and fourth years extensive options are provided, and certain exemptions also are allowed to professional students. The courses of study lead to the Degrees of B.A., M.A., B.Sc., M.Sc., D.Sc., and D.Litt. The Degree of B.A. from this University admits the holder to the study of the learned professions without preliminary examination in the Provinces of Canada and in Great Britain and Ireland, and elsewhere.

The undergraduate course in Arts can be taken along with the undergraduate course in Medicine or Applied Science in six years, or with the undergraduate course in Law in five years. This is effected by avoiding the duplication of courses in the same subjects or in those which give the same educational training, and by a proper adaptation of the time tables. Alternatively, a certificate of Literate in Arts is given along with the Degree in Medicine, Applied Science, or Law, to candidates who have completed two years in Arts before entering the professional Faculty.

The curriculum in Arts provides for the education of women, mainly in separate classes, with courses of study, exemptions, degrees, and honours identical with those for men.

The Faculty of Applied Science.—The undergraduate courses of study extend over four Sessions of eight months each, and provide a thorough professional training in Civil Engineering, Mechanical Engineering, Mining Engineering and Assaying, Electrical Engineering, Practical Chemistry, and Architecture. The courses of study lead to the Degrees of B.Sc., M.Sc.,

and D.Sc. The undergraduate course in Arts can be taken along with the undergraduate course in Applied Science in six years.

The Faculty of Law.—The undergraduate course extends over three Sessions of eight months each, and leads to the Degrees of B.C.L. and D.C.L. The undergraduate course in Arts can be taken along with the undergraduate course in Law in five years.

The Faculty of Medicine.—The undergraduate course of study extends over four Sessions of nine months each, and leads to the Degree of M.D., C.M. The undergraduate course in Arts can be taken along with the undergraduate course in Medicine in six years.

The Faculty of Comparative Medicine and Veterinary Science.—The undergraduate course of study extends over three Sessions of six months each, and leads to the Degree of D.V.S.

Affiliated Colleges.

Students of Affiliated Colleges are matriculated in the University, and may pursue their course of study in the Affiliated College, or in part in the Affiliated College, and in part in McGill College, as the case may be, and may come up to the University Examinations on the same terms as the students of McGill College.

The Stanstead Wesleyan College, Stanstead, P.Q.—Is affiliated in so far as regards the work of the first two years and the Intermediate examination in Arts. Detailed information may be obtained from the Rev. C. R. Flanders, B.A., D.D., Principal.

Vancouver College, Vancouver, B.C.—Is affiliated in so far as regards the work of the First Year in Arts. Detailed information may be obtained from J. C. Shaw, Esq., M.A., Principal.

Affiliated Theological Colleges.

Students of the following Affiliated Theological Colleges may attend the courses of study in Arts, either as undergraduates or partial students, with such facilities in regard to exemptions as may be agreed on :

The Congregational College of Canada, Montreal. Principal, Rev. J. Henry George, D.D., Ph.D., 58 McTavish St.

The Presbyterian College, Montreal, in connection with the Presbyterian Church in Canada. Principal, Rev. D. H. MacVicar, D.D., LL.D., 69 McTavish St.

The Wesleyan College of Montreal. Principal, Rev. J. T. L. Maggs, B.A., B.D.

The Diocesan College of Montreal. Principal, Rev. Henry M. Hackett, M.A., B.D., 201 University St.

Calendars of the above Colleges and all necessary information may be obtained on application to their Principals.

McGill Normal School.

The McGill Normal School provides the training requisite for Teachers of Elementary and Model Schools and Academies. Teachers trained in this School are entitled to Provincial Diplomas, and may, on certain conditions, enter the classes in the Faculty of Arts for Academy Diplomas and for the Degree of B.A. Principal, S. P. Robins, LL.D., 32 Belmont St., Montreal, from whom copies of the School announcement may be obtained.

Affiliated High Schools, Etc.

The following schools are affiliated in the sense of preparing candidates for matriculation :

The Trafalgar Institute for the higher education of women, Simpson St., Montreal, Principal, Miss Grace Fairley. The High School of Montreal, and the Girls' High School of Montreal, Metcalfe St., Principal, Rev. Elson I. Rexford, B.A.

Schools which have prepared successful candidates for the University School Examinations or for matriculation (June, 1900) :

High School, Montreal ; Girls' High School, Montreal ; Abingdon School, Montreal; St. John's School, Montreal; Miss Symmers' and Miss Smith's School, Montreal; Westmount Acad.; St. Andrew's School, Annapolis Royal, N.S.; Bishop's Coll. School, Lennoxville ; Coaticook Academy ; Compton Ladies' Coll. ; Cookshire Acad.; Cowansville Academy; Danville Acad.; Dunham Ladies' Coll.; Dufferin Gram. School; Gault Institute, Valleyfield; Granby High School ; Huntingdon Acad. ; Inverness Acad. ; Knowlton Acad.; Lachute Acad.; Lennoxville Mod. School; Magog Mod. School ; Mansonville Mod. School ; New Westminster H. S. ; Orangeville High Sch.; Ormstown Acad.; Ottawa Coll. Inst.;

Boys' H. S., Quebec; Girls' H. S., Quebec; Ridley Coll., St. Catharines; School for Girls, St. John, N.B.; Sherbrooke Acad.; Sherburne Acad.; Stanstead Wesleyan Coll.; Sutton Acad.; St. Albans School, Berthier ; St. Bonaventure Coll., St. John's, Nfld. ; St. Lambert Mod. School ; St. Francis Coll. School ; High School, St. John, N.B.; St. John's H. S.; Upper Canada Coll.; Vancouver Coll., Vancouver, B.C.; High School, Victoria, B.C.; Waterloo Acad.; Williamstown H. S.

Affiliation to other Universities.

The University is affiliated to the Universities of Oxford, Cambridge, and Dublin, under conditions which allow an undergraduate who has taken two years work, and has passed the University Intermediate Examination in Arts, to pursue his studies and take his Degree at any of those universities on a reduced period of residence.

The Session.

The University Year or Session is divided into two terms, the first extending to the Christmas vacation, and the second from the expiry of the Christmas vacation to the date appointed for the meeting of Convocation for the conferring of degrees.

For 1901-1902 the Session of the **Faculty of Arts** commences on 11th September, 1901, and ends on 30th April, 1902. Lectures commence on 24th September. Summer classes in English, Latin, Greek, Mathematics, French, German, and Logic will be held during the months of May and June.

The Session of the **Faculty of Applied Science** commences on 11th September, 1901, and extends to 30th April, 1902. Lectures commence on 24th September. Field work in Surveying commences on 2nd September, 1901. The Summer School in Mining commences at the end of the Session, and continues to about the end of the second week in June.

The Session of the **Faculty of Law** commences on 11th September, 1901, and ends on 30th April, 1902. Lectures commence on 24th September.

The Session of the **Faculty of Medicine** commences on 11th September, 1901, and ends on 15th June, 1902. Lectures commence on 24th September.

The Session of the **Faculty of Comparative Medicine and Veterinary Science** commences on 21st September, 1901, and ends on 27th March, 1902. Lectures commence on 24th September.

The Session is divided into two terms, the first extending to the Christmas vacation, and the second from the expiry of the Christmas vacation to the date appointed for the meeting of Convocation for the conferring of degrees.

Board and Residence.

No residential accommodation has as yet been provided in the College for men students. Women students may board and reside either in private houses or in the Royal Victoria College, which provides, in addition to separate lecture rooms, residential accommodation for the women students of the University.

Good board and lodgings can be obtained in private houses in the vicinity of the University buildings at a cost of from $15 to $25 per month; or, separately, board at $12 to $15 per month, rooms at $4 to $10 per month.

A list of suitable boarding and Lodging houses, the sanitary conditions of which are required to be properly certified, is prepared annually, and may be obtained upon application to the Registrar of the University or the Janitor of the Medical building.

Full particulars of the Royal Victoria College for Women and the terms of residence therein are given on p. 144.

The erection of suitable University residential halls for men is contemplated in the near future.

The McGill Y.M.C.A. will arrange to meet any stranger at the station, and aid him to secure lodgings, etc., if sufficient notice of time of arrival and station is sent to the secretary of the McGill Y.M.C.A., 844 Sherbrooke Street, Montreal.

Exhibitions, Scholarships, Prizes, Etc.

Bursaries, Exhibitions, and Scholarships, particulars of which are given in the announcements of the several Faculties (see *post*), are offered for competition to students entering the Unversity. In addition to a number of valuable exhibitions and scholarships offered for competition to Second and Third Year students, First Year Entrance Exhibitions, ranging from $90 to $200 each, will be offered for competition to students entering the First Year in Arts in September, 1901. For details of the examination, which may serve also as an examination for matriculation, see pp. 46-51.

Gold Medals, Honours, and Prizes are awarded for advanced courses of study.

Classification of Students.

Except under special circumstances, no student under the age of sixteen is admitted to the First Year courses, or under the age of seventeen to the Second Year courses in Arts, Applied Science, or Medicine, and no student under the age of seventeen is admitted to the courses in Law or Comparative Medicine and Veterinary Science.

Students are classified as Graduate Students (see p. 27), Undergraduates, Conditioned Students, and Partial Students.

Undergraduates are matriculated students who are pursuing a full undergraduate course of study leading to a degree.

Conditioned Students are those who, not having completed their matriculation examination, are pursuing a full undergraduate course of study leading to a degree, and are entitled, under the regulations of the Faculty, to obtain undergraduate standing upon completing their matriculation ; credit being given for their work as Conditioned Students.

Partial Students are those who, not belonging to one of the above classes of students, are pursuing a course of study in the University.

Women are admitted to the courses in Arts (on identical terms with men, but mainly in separate classes), and also to

the Architectural, Freehand Drawing, and Modelling Classes in Applied Science.

All students are required to attend lectures at the University buildings in Montreal, or at one of the affiliated colleges.

Undergraduates.

In order to obtain undergraduate standing, a candidate must have passed the Matriculation Examination of the University, or some other examination accepted in lieu thereof (see p. 21), and have registered as a Matriculated Undergraduate.

Conditioned Students.

Candidates who fail to pass the September Matriculation Examination may, if so recommended by the Board of Matriculation Examiners, enter the First Year Undergraduate Course as Conditioned Students with the view of subsequently obtaining full undergraduate standing, by passing an examination prescribed by the Board of Matriculation Examiners. Credit will be given, in the undergraduate course, for the work done by such Undergraduates while attending as Conditioned Students.

No student can enter the Second Year of his course of study until all his matriculation conditions have been removed. The Examinations for this purpose are to be taken at the June or September Matriculation Examination unless the contrary is specially authorised by the Board of Matriculation Examiners.

Partial Students.

Partial Students may, subject to the approval of the Professor, attend any class without previous examination.

Partial Students who subsequently obtain undergraduate standing by passing the Matriculation Examination may, as Undergraduates, be exempted, at the discretion of the Faculty, from a particular course or courses of lectures which they have attended as Partial Students.

Partial Students who pass the First Year Sessional Examinations are not, *ipso facto*, qualified for undergraduate standing in the Second Year.

Matriculation.

All inquiries relating to the Matriculation Examination should be addressed to the Secretary of the Board of Matriculation Examiners.

The Subjects of the Matriculation Examination required by the respective Faculties are as follows:

Faculty of Arts.

For candidates intending to take the B.A. course :—

1. **English** and **History.**
2. **Mathematics, Part I.**
3. **Latin** *or* **Greek.**
4. **Greek** *or* **Latin,** (If not already chosen.)
   or **two Modern Languages.**
   or **one Modern Language** with **Mathematics, Part II.**
5. One of the following :
   Physiography, Botany, Chemistry, Physics, a **Language** not already chosen.

For candidates intending to take the B.Sc. course in Arts:

In 1901 :

1. **English** and **History.**
2. **Mathematics, Part I.**
3. Two of the following :
   Latin, Greek, French, German.
4. One of the following :
   Physiography, Botany, Chemistry, Physics, Mathematics, Part II, a **Language** not already chosen.

Candidates intending to take the B.Sc. course are requested to note that after admission, both French and German are required; and that, although there is, for the present, a beginners' class in German, there is no beginners' class in French.

Candidates who intend ultimately to proceed to the study of Medicine are reminded that for Medical Registration it will be necessary to take Latin.

In 1902 and subsequently the requirements for candidates intending to take the B.Sc. course in Arts will be as follows:

1. **English** and **History.**
2. **Mathematics, Part I.**
3. **French.**
4. **German.**
5. One of the following:
   Physiography, Botany, Chemistry, Physics, Mathematics, Part II, Latin, Greek.

Faculty of Applied Science.

1. **English** and **History.**
2. **Mathematics, Part I.**
3. **Mathematics, Part II.**
4. **French** *or* **German.**
5. One of the following:
   Physiography, Botany, Chemistry, Physics, a **Language** not already chosen.

In addition to those who qualify on certificates mentioned on p. 20, par. 9, students who have completed one or more years of the Arts Course may enter this Faculty on passing an examination in Mathematics, Part II., if any, required for Matriculation into the Faculty of Applied Science.

Faculty of Law.

Bachelors of Arts, Science, or Letters of any Canadian or British University (see R.S.Q. 3503*a*) are admitted without examination.

Candidates who intend to practise law or to be admitted to the notarial profession in the Province of Quebec are referred to the statutory requirements given on pp. 239 *infra*. If they are not graduates they should pass the examination for admission to study required by the Council of the Bar or by the Board of Notaries, as the case may be, before seeking to matriculate. In that case they will be matriculated without examination. For other candidates the subjects required for matriculation are as follows:

1. **English** and **History.**
2. **Mathematics, Part I.**
3. **Latin.**

4. **French.**
5. One of the following :
   Physiography, Botany, Chemistry, Physics, a **Language** not already chosen.

Candidates must reach a high standard in Latin and French. The certificates mentioned on p. 21, are accepted *pro tanto.*

Faculty of Medicine.

In 1901 :—

1. **English** and **History.**
2. **Mathematics, Part I.**
3. **Latin.**
4. One of the following :
   French, German, Greek, Chemistry, Physics.

In 1902 and subsequently:—

1. **English** and **History.**
2. **Mathematics, Part I.**
3. **Latin.**
4. **Chemistry** and **Physics.**
5. One of the following :
   Greek, French, German.

In addition to the certificates mentioned on p. 20, par. 9, the following are accepted in lieu of the Matriculation Examination :

The Degree of Bachelor of Arts obtained from any recognized university.

A certificate of having passed the Examination of a Provincial Medical Council.

In the case of candidates from the United States, a certificate of having passed a State or University Examination fully equivalent to the Matriculation Examination required for entrance in this University.

All certificates must cover Latin.

The examination requirements for those who intend to practise medicine in any of the Provinces of Canada, or in Great Britain and Ireland and the British Colonies will be found on pp. 251 *et seqq.*

Faculty of Comparative Medicine and Veterinary Science.

The Matriculation Examination for the Faculty of Comparative Medicine and Veterinary Science is held separately. Details of this Examination will be found on p. 306.

Details of the Subjects of the Matriculation Examination.

English.

Dictation.

Grammar.—A paper on English Grammar, including Analysis. The candidate will be expected to show a good knowledge of Accidence, as treated in any grammar prepared for the higher forms of schools. A similar statement applies to grammatical Analysis. Candidates are required to state the class to which any subordinate sentence belongs, and to arrange and define the various members of all sentences set. Failure in Analysis and Parsing will cause the rejection of the paper. West's English Grammar for Beginners is recommended as a text-book.

British History.—Candidates will be required to give the chief details of leading events. While any text-book written for the upper forms of schools may be used in preparation for the examination, Gardiner's Outline of English History (Longmans) is recommended.

Composition.—Candidates will write a short essay on a subject given at the time of the examination.

Literature.—1901—(*a*) Scott's Lady of the Lake (ed. Stuart, Macmillan), or selections from Tennyson, Part I. (ed. Rowe and Webb, Macmillan); (*b*) Shakspere's Richard II. (ed. Deighton, Macmillan.)

1902 and 1903—As in 1901.

The contemporaneous requirements for the Junior Leaving English (*†) of the Province of Ontario will be accepted

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*1901—Tennyson: Elaine, Lady of Shalott, St. Agnes' Eve, Sir Galahad, Lotos Eaters, Ulysses. Crossing the Bar, Early Spring, "You Ask Me Why," "Of Old Sat Freedom," "Love Thou Thy Land," the six interlude songs, and "Tears, Idle Tears," in "The Princess."

†1902—Scott: Lay of the Last Minstrel.

in place of any *one* of the texts specified above for 1901 and 1902.

Mathematics, Part I.

Arithmetic.—Elementary Rules, Vulgar and Decimal Fractions, Proportion, Percentage, Simple Interest, etc., Square Root, and a knowledge of the Metric System.

Geometry.—Euclid's Elements, Books I, II, III, with easy deductions; or an equivalent.

Algebra.—Elementary Rules, Involution, Evolution, Fractions, Indices, Surds, Simple and Quadratic Equations of one or more unknown quantities, as in Hall and Knight's Elementary Algebra to end of Surds (omitting portions marked with an asterisk), or in similar text-books.

Mathematics, Part II.

Geometry.—Euclid's Elements, Books IV and VI, with definitions of Book V, and easy deductions; or an equivalent.

Algebra.—The three Progressions, Ratio, Proportion, Variation, Permutations and Combinations, Binomial Theorem, Logarithms, Interest and Annuities, as in remainder of Hall and Knight's Elementary Algebra, omitting chaps. 36. 40, 41, 42, or in similar text-books.

Trigonometry.—Measurement of angles, Trigonometrical ratios or functions of one angle, of two angles, and of a multiple angle, as in Hamblin Smith, pp. 1-105, or as in Lock's Elementary Trigonometry, Chap. I-XII, or in similar text-books.

Greek.

Grammar.

Texts.—(Translation and grammatical study):—

1901—Xenophon, Anabasis I or II.

1902—Xenophon, Anabasis I or II.

1903—Xenophon, Anabasis I (as in White's Beginners' Greek Book, pp. 304-328), or Xenophon, Anabasis II.

Translation at Sight, and Prose Composition (sentences or easy narrative based upon the prescribed texts.)

The requirements for the Junior Leaving Greek of the Province of Ontario will be accepted in place of the texts specified above. At the September Examination other texts equivalent to those specified may be accepted if application be made to the Secretary of the Board of Matriculation Examiners, at least one month before the date of the examination.

Latin.

Grammar.

Texts.—(Translation and grammatical study):—

1901—Caesar, De Bello Gallico, any two of the following books: I, II, III.
Virgil, Aeneid II.

1902—Caesar, De Bellico Gallico IV and V.
Virgil, Aeneid II.

1903—Cornelius Nepos, Lives of Miltiades and Epaminondas (G. H. Nall in Macmillan's Elementary Classics).
Caesar, De Bello Gallico, I and II.
Ovid, Stories from the Metamorphoses (as in Gleason's "A Term of Ovid," American Book Company).

Translation at Sight, and Prose Composition (sentences and easy narrative based upon the prescribed texts.)

The requirements for the Junior Leaving Latin of the Province of Ontario will be accepted in place of the texts specified above. At the September Examination other texts in Latin equivalent to those specified may be accepted, if aplication be made to the Secretary of the Board of Matriculation Examiners at least a month before the day of the examination.

French.

Grammar.—Accidence and Syntax. Candidates will be required to possess an exact knowledge of the common elements: Bertenshaw's French Grammar is recommended as containing the amount required for the examination.

Translation at Sight from French into English. Translation into French of easy English passages. Brief reproduction in French of a story read by the examiner in English.

German.

Grammar.—A thorough knowledge of German accidence.

Translation.—Candidates must be able to translate into German with tolerable correctness exercises approximately equal in difficulty to those contained in the First Part of Van der Smissen's High School German Grammar, or in the First and Second Parts of the Joynes-Meissner German Grammar (Heath & Co.).

Texts.—(Translation and grammatical study):—

1901—Leander, Träumereien (Copp, Clark Co.)

1902—Leander, Träumereien (Copp, Clark Co.)

The requirements for the Junior Leaving German of the Province of Ontario will be accepted in place of the texts specified above. At the September examination other texts equivalent to those specified may be accepted, if application be made to the Secretary of the Board of Matriculation Examiners, at least one month before the date of examination.

Physiography.

The elements of the Science, as in Tarr's First Book of Physical Geography, or Hinman's Eclectic Physical Geography, or other text-books covering the same ground.

Botany

As in Groom's Elementary Botany, with Penhallow's Guide to the Collection of Plants and blanks for Plant Description.

Credit will be given for plant collections. These must be forwarded to Montreal for examination. The collections will be returned, if desired, at the expense of the school or individuals to whom they belong.

Any plant of the same family may be substituted for any one of those specified in Part II. of Groom's Elementary Botany, according to requirements of the locality.

Chemistry.

Elementary Inorganic Chemistry, comprising the preparation and properties of the chief non-metallic elements and their more important compounds, the laws of chemical action, combining weight, etc. (The ground is simply and effectively covered by Remsen's "Elements of Chemistry," pp. 1 to 160.)

Physics.

Properties of Matter ; Elementary Mechanics of Solids and Fluids, including the Laws of Motion, Simple Machines, Work, Energy; Fluid Pressure and Specific Gravity; Thermometry, The effects and modes of transmission of Heat. (See, for instance, Gage's Introduction to Physical Science, ch. I.-V.)

Matriculation Examination Regulations.

1. Matriculation Examinations (for entrance in all Faculties except the Faculty of Comparative Medicine and Veterinary Science) are held only in June and September. The examinations are held in June at McGill College, the Royal Victoria College, and at local centres; in September at McGill College, the Royal Victoria College, and affiliated colleges only.

2. The examinations in 1901 will commence on 10th June and 11th September. Special arrangements may be made for the examination of candidates who are prevented by severe illness or domestic affliction from presenting themselves on these dates.

The time-table for the June Examination will be as under :

Mon. 10th, 9 a.m.—English Grammar.
10.30 a.m.—English Dictation and Composition.
2 p.m.—Mathematics, Part I. (Algebra).
3.30 p.m.—French

Tues. 11th, 9 a.m.—Arithmetic.
10.30 a.m.—History.
2 p.m.—Mathematics, Part I. (Geometry).
4 p.m.—Mathematics, Part II. (Trigonometry).
Wed. 12th, 9 a.m.—Latin.
2 p.m.—Chemistry.
3.30 p.m.—Physics.
Thur. 13th, 9 a.m.—Mathematics, Part II. (Algebra and Geometry).
11 a.m.—English Literature.
2 p.m.—German.
4 p.m.—Physiography.
Fri. 14th, 9 a.m.—Greek.
Mon. 17th, 9 a.m.—Botany.

The time-table for the September Examination will be as under :—

Wed. 11th, 9 a.m.—Latin Books and Sight Translation.
2 p.m.—Latin Grammar and Composition.
Thur. 12th, 9 a.m.—Mathematics, Part I. (Geometry).
2 p.m.—Mathematics, Part I. (Arithmetic and Algebra).
Fri. 13th, 9 a.m.—English Grammar and History.
2 p.m.—English Literature, Dictation, Composition.
Mon. 16th, 9 a.m.—French.
2 p.m.—German.
Tues. 17th, 9 a.m.—Mathematics, Part II.
2 p.m.—Physiography, Botany, Chemistry, Physics.
Wed. 18th, 9 a.m.—Greek Books and Sight Translation.
2 p.m.—Greek Grammar and Composition.

3. The fee for the examination is payable, except in the case of examination at a local centre (see below), to the Registrar of the University, or the Secretary of the Board of Matriculation Examiners.

4. In order to obtain an examination at a local centre, any Head Master or other person must, before May 10th, submit to the Secretary of the Board of Matriculation Examiners, the name of some suitable person, preferably a University Graduate, who is willing to act as Deputy Examiner, *i.e.*, receive the questions, hold the examinations, and forward the answers to Montreal.

The fee for this local examination must be paid to the Deputy Examiner before the commencement of the examination. The University will not be responsible for local expenses.

5. Candidates may take Arithmetic, and all the English subjects except Literature at the Matriculation Examination of one year, and the remainder at the Matriculation Examination of the following year.

6. Candidates who fail in one or more subjects at the June Examination, or who have taken part only of the examination, and present themselves again in the following September, will be re-examined in all subjects except those subjects in which they have passed.

7. Candidates who fail to pass at the September Examination may, if so recommended by the Board of Matriculation Examiners, enter the First Year Undergraduate Course as Conditioned Students, with the view of subsequently obtaining full undergraduate standing by passing an examination prescribed by the Board of Matriculation Examiners.

8. Candidates who have passed Academy Grade II. of the Province of Quebec, or the Preliminary subjects of the University School (A.A.) Examinations, are exempt from examination in Arithmetic, English Grammar, Dictation, and English History.

9. The following examinations are accepted *pro tanto* in lieu of the Matriculation Examination, *i.e.*, in so far as the subjects and standard are, to the satisfaction of the Board of Matriculation Examiners, the same as and equivalent to those required for the Matriculation Examination of the University;

but candidates offering certificates of having passed such examinations will be required to make good their standing by passing the Matriculation Examination in such of the required subjects, if any, as are not covered by their certificates:

Province of Quebec.

Academy Grade II (in the following English subjects, viz.: Dictation, Grammar, History, Composition; and also in Arithmetic).

McGill Normal School, Montreal: The Model School Diploma, under certain conditions.

The University School (A.A.) Examinations.

Province of Ontario.

The Leaving Examinations, Parts I. and II.

Province of Nova Scotia.

The Leaving Examinations, Grades XI. and XII.

Province of Prince Edward Island.

The Leaving Examination of Prince of Wales College.

A candidate's application for exemption from the Matriculation Examination based upon certificates of his having passed examinations other than those above mentioned, will be considered as occasion may require by the Board of Matriculation Examiners. Every such application must be accompanied by certificates and full particulars, and should be addressed to the Secretary of the Board.

Matriculation Fees.

For the Matriculation Examination	$5 00
For candidates who take the examination in part or who, through failure or other cause, do not complete it—for the first examination	5 00
For any subsequent examination	2 00
For examination of certificates, other than A.A. Certificates, in respect of which candidates are exempted from the whole of the Matriculation Examination.	1 00

Candidates who have passed the University School (A.A.) Examination in the required matriculation subjects, and desire to enter the University, are required to pay the same fee as that for the Matriculation Examination, viz., $5.00, less any sum already paid in connection with the University School (A.A.) Examination.

Candidates for First Year Entrance Exhibitions who have paid the matriculation fee as above provided, may compete in the Exhibition Examinations free of charge. Other candidates for the Exhibitions will pay the same fee as that for the Matriculation Examination, viz., $5.00 ; the First Year Entrance Exhibition Examination being in that case regarded as a matriculation examination.

Certificates will be issued to candidates successful in the matriculation examinations without additional fee. Duplicate certificates will not be granted unless satisfactory proof be given of the loss or destruction of the original. The fee for a duplicate certificate is One Dollar.

Admission to Second Year.

Admission to the Second Year is open, as a rule, only to Undergraduates who have passed the First Year Sessional Examination in regular course, but in exceptional cases, to be dealt with by the Faculty in which they desire to register, candidates may be admitted directly to the Second Year without having passed through the curriculum of the First Year.

Students of Other Universities Applying For Equivalent Standing.

Any student of another University desirous to be admitted to this University with equivalent standing is requested to send with his application :—

1st.—A Calendar of the University in which he has studied, giving a full statement of the courses of study.

2nd.—A complete statement of the course he has followed.

3rd.—A certificate of the standing gained, and of conduct.

These will be submitted to the Faculty in which he desires to register.

The Faculty, if otherwise satisfied, will decide what examination, if any, or what conditions, may be necessary before admitting the candidate.

Registration.

1. Candidates for entrance (Undergraduates, Conditioned Students and Partial Students), are required to attend at the office of the Registrar of the University for the purpose of giving their addresses and other particulars, and of signing the following declaration in the Matricula or Register:

"I hereby declare that I will faithfully observe the Statutes, rules, and ordinances of this University of McGill College to the best of my ability."

2. Every Undergraduate or Conditioned Student must produce to the Registrar of the University* his Matriculation Certificate or other certificate accepted as qualifying the candidate for entrance. The candidate is then entitled to enter as an undergraduate or conditioned student, as the case may be, in the Faculty in which he desires to register.

3. After registration and payment of the required fees, the student will be given tickets of admission to the classes which he is entitled to attend. The tickets of admission must be shown at the commencement of the session to the Dean of the Faculty† in which the student is registered, and also to the Professor or Lecturer in charge of any class attended by him.

4. After the lapse of a fortnight from the commencement of lectures, Professors and Lecturers in charge of classes will require every attending student to produce his ticket of admission, and will report to the Dean† the name of any student failing to produce it; and if, thereafter, upon notice by the Dean to the Professor or Lecturer, the student is not able to

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* In the case of students in Medicine, to the Registrar of the Faculty of Medicine. In the case of students in Comparative Medicine, to the Registrar of the Faculty of Comparative Medicine and Veterinary Science.

† In the case of the Faculty of Medicine to the Registrar of that Faculty.

produce his ticket of admission, the Professor or Lecturer will prohibit him from further attendance, and will report to the Dean† accordingly; and similarly in the case of students joining the class during the course of the session.

Degrees.

In order to obtain the degrees of B.A., B.Sc., B.C.L., M.D., C.M., and D.V.S., students of this University are required to attend the lectures and to pass the examinations of the undergraduate courses.

Regulations for the Degree of B.A.

Students who shall have satisfactorily completed the Regular Course of Study in Arts, shall have passed the prescribed examinations during the Course, and also the special examinations for graduation, and shall have performed such exercises as may be prescribed to that end, shall be entitled to the Degree of Bachelor of Arts.

Regulations for the Degree of B.Sc.

Students who shall have satisfactorily completed the prescribed Course of Study in the Faculty of Arts for the Degree of Bachelor of Science, or the Course of Study in the Faculty of Applied Science, shall have passed the prescribed examinations during the Course, and also the special examinations for Graduation, and shall have performed such exercises as may be prescribed to that end, shall be entitled to the Degree of Bachelor of Science.

Regulations tor the Degree of B.C.L.

Students who shall have satisfactorily completed the Regular Course of Study in Law, shall have passed the prescribed examinations during the Course and also the special examinations for Graduation, shall be entitled to the Degree of Bachelor of Civil Law. A Bachelor or Master of Arts, or an Articled Student with a practising Member of the Bar of the

Province of Quebec, who shall have matriculated in the third year of his Clerkship under such articles, shall be entitled to such Degree after two years' attendance on the said Course of Study, if he shall satisfactorily pass all requisite examinations, and perform all required exercises.

Regulations for the Degree of M.A.

Bachelors of Arts of at least one year's standing who (*a*) shall have taken for one year a graduate course of study in Arts in the University, previously submitted to and approved by the Faculty, and (*b*) shall have passed an examination at the end of the course, and (*c*) shall have presented, if required, a satisfactory thesis, shall be entitled to the Degree of Master of Arts. Bachelors of Arts of at least two years' standing who shall have presented a satisfactory thesis and passed a special examination, shall be entitled to the Degree of Master of Arts.

Any Bachelor of Arts who graduated prior to May 1st, 1899, or any Undergraduate in Arts registered at that date, and proceeding thereafter to the Degree of Bachelor of Arts, shall at his option be entitled to the Degree of Master of Arts on the following conditions :

1. A candidate must be a Bachelor of Arts of at least three years' standing.

2. He is required to prepare and submit to the Faculty a thesis on some literary or scientific subject, under the following rules :—

(*a*) The subject of the thesis must be submitted to the Faculty before the thesis is presented.

(*b*) A paper read previously to any association, or published in any way, cannot be accepted as a thesis.

(*c*) The thesis submitted becomes the property of the University, and cannot be published without the consent of the Faculty of Arts.

(*d*) The thesis must be submitted before some date to be fixed annually by the Faculty, which date must not be less than two months before the candidate proceeds to the Degree.

The last day in the session of 1901-1902 *for sending in Theses for M.A. will be Jan.* 31*st*, 1902.

3. All candidates, except those who have taken First or Second Rank B.A. Honours, or have passed First Class in the Ordinary Examinations for the Degree of B.A., are required to pass an examination also, either in Literature or in Science, as each candidate may select.

(*a*) The subjects of the Examination in *Literature* are divided into two divisions as follows:—

Group A.—Latin, Greek, Hebrew.

Group B.—French, German, English.

(*b*) The subjects of the Examination in *Science* are divided into three divisions:—

Group A.—Pure Mathematics (advanced or ordinary), Mechanics (including Hydrostatics), Astronomy, Optics.

Group B.—Geology and Mineralogy, Botany, Zoology, Chemistry.

Group C.—Mental Philosophy, Moral Philosophy, Logic, History of Philosophy.

(*c*) Every candidate in Literature is required to select for Examination two subjects out of one group in the *Literature* section, and one out of the other group in the same section. Every candidate in Science is required to select two out of the three groups in the *Science* section; and in one of the groups so chosen to select for Examination two subjects, and in the other group one subject.

(*d*) One of the subjects selected as above will be considered the principal subject (being so denoted by the candidate at the time of application), and the other two as subordinate subjects.

(*e*) The whole examination may be taken in one year, or distributed over two or three years, provided the examination in any one subject be not divided.

For further details of the examination, application must be made to the Faculty before the above date.

The fee for the degree is $20; *in absentia*, $40. (In case of failure, the candidate may present himself in a subsequent year without further payment of fees.) The examination will be held in April in McGill College only. A candidate after fulfilling all the conditions ought to notify the Faculty of his desire to proceed to the degree at the next convocation.

Candidates who obtained the degree of B.A. before 1884 *may proceed to the degree of M.A. under the regulations in force previous to* 1884.

Lectures are open to Bachelors of Arts who are candidates for M.A., the sessional examinations corresponding to these lectures being reckoned as parts of the M.A. examination. The subjects are Greek, Latin, English, French, German, History, Mental and Moral Philosophy, Chemistry, Experimental Physics, Botany, Zoology, Geology and Mineralogy. Certificates of standing will be given.

Regulations for the Degree of M.Sc.

Bachelors of Arts or Bachelors of Science of at least one year's standing who shall have taken for one year a Graduate Course of Study in the Faculty of Arts or the Faculty of Applied Science of the University previously submitted to and approved by the Faculty, shall have passed an examination at the end of the year, and shall, if required, have presented a satisfactory thesis; or Bachelors of Arts or Bachelors of Science of at least two years' standing who shall have presented a satisfactory thesis, and shall have passed a special examination for the degree, shall be entitled to the Degree of Master of Science.

The fee for the degree is $20; *in absentia*, $40.

Regulations for the Degree of M.D.

Students who shall have satisfactorily completed the Regular Course of Study in Medicine, shall have passed the prescribed examinations during the course, and also the special examinations for Graduation, shall be entitled to the Degree of Doctor of Medicine and Master of Surgery.

Regulations for the Degree of D.V.S.

Students who shall have satisfactorily completed the Regular Course of Study in Comparative Medicine and Veterinary Science, shall have passed the prescribed examinations during the course, and also the special examinations for Graduation, shall be entitled to the Degree of Doctor of Veterinary Surgery.

Regulations for the Degree of D.Litt.

Candidates for the Degree of Doctor of Literature must be Masters of Arts, who, being graduates at least of five years' standing, shall have distinguished themselves by special research and learning in the domain of Literature or Philosophy. They are required to present a satisfactory thesis or published work.

The fee for the degree is $80.

Regulations for the Degree of D.Sc.

Candidates for the Degree of Doctor of Science must be Masters of Arts or Masters of Science, or Doctors of Medicine, who, being graduates of at least five years' standing, shall have distinguished themselves by special research and learning in the domain of Science. They are required to present a satisfactory thesis or published work.

The fee for the degree is $80.

Regulations for the Degree of D.C.L.

Candidates for the Degree of Doctor of Civil Law must be Bachelors of Civil Law of at least twelve years' standing. They are required to pass a special examination for the degree and to present a satisfactory thesis or published work on some subject selected or approved by the Faculty of Law. For details of the examination, etc., see pp. 236-7.

The fee for the degree is $80.

Regulations for the Degree of LL.D.

Except as hereinafter mentioned, the Degree of Doctor of Laws is given only as an honorary degree.

Any person who matriculated and attended lectures in the Faculty of Arts before the 31st January, 1899, may proceed to the Degree of Doctor of Laws in course upon the following conditions:

Candidates for the Degree of LL.D. in course must be Masters of Arts of at least twelve years' standing, and are required to prepare and submit to the Faculty of Arts, not less than three months before proceeding to the degree, twenty-five printed copies of a thesis on some Literary or Scientific subject which has been *previously approved by the Faculty.* The thesis must exhibit such a degree of literary or scientific merit, and give evidence of such originality of thought or extent of research as shall, in the opinion of the Faculty, justify recommendation for the degree.

Candidates are also required to submit, with their thesis, a list of books treating of some one branch of Literature or of Science satisfactory to the Faculty in which they are prepared to submit to examination, and in which they shall be examined, unless otherwise ordered by the Faculty.

The fee for the degree in course is $80.

Admission "Ad Eundem Gradum."

The following are the regulations applicable to admission "ad eundem gradum" :—

Extract from the Statutes, Chap. VIII.

"Graduates of other Universities, desirous of admission "to the like Degree in this University, may be so admitted "by the Corporation ; due enquiry being first made as to "their moral character and sound learning, and opportunity "given to the several Faculties to make such representation "in the premises as they may see fit. Provided always, that, "unless by unanimous consent, such admission shall not "be put to vote until after three months' notice, and shall "not be ordered, if as many as five Members of the Cor-"poration shall vote against it."

Extract from the Regulations of the Corporation.

"In all cases in which anyone is proposed for any 'Ad "Eundem' degree, it shall be necessary for the Member or "Members of the Corporation making such proposal, to state "in writing therewith the grounds upon which the granting "of such degree is advocated, and when the case shall be re- "ferred to the Faculties, under Chap. VIII. of the Statutes, "copies of such proposal and grounds shall be transmitted to "the Faculties by the Secretary for their consideration."

Note.—In considering applications under the above regulations, the Faculties will require as "grounds" the pursuit of a course of study or research in this University; association with the academic work of the University; or similar qualifications.

Admission "ad eundem gradum" is not granted merely as a titular distinction.

Academic Dress.

Professors, Lecturers, and Students are required to wear academic dress in attending lectures, except in those cases in which a dispensation shall have been granted by the Faculty.

Attendance and Conduct.

1. Punctual attendance on all his classes is required of each student.

2. A record shall be kept by each Professor or Lecturer, in which the presence or absence of Students shall be carefully noted. The record shall be submitted to the Faculty at all their ordinary meetings during the Session.

3. Credit for attendance on any lecture or class may be refused on the grounds of lateness, inattention, neglect of study, or disorderly conduct in the class-room or laboratory. In the case last mentioned, the student may, at the discretion of the Professor, be required to leave the room. Persistence in any of the above offences against discipline shall, after

admonition by the Professor, be reported to the Dean of Faculty. The Dean may, at his discretion, reprimand the student, or refer the matter to the Faculty at its next meeting, and may in the interval suspend from classes.

4. Absence from lectures can only be excused by necessity or duty, of which proof must be given, when called for, to the Faculty. The number of times of absence, from necessity or duty, that shall disqualify from the keeping of a session shall in each case be determined by the Faculty.

5. Any student found guilty of dishonest practices at an examination shall be liable to expulsion from the University, or to be suspended for a term of years.

6. While in college, or going to or from it, Students are expected to conduct themselves in the same orderly manner as in the class-rooms. Smoking is prohibited in the College buildings, except in such rooms, if any, as may be set apart for that purpose. Any Professor observing improper conduct in the College buildings or grounds may admonish the student, and, if necessary, report him to the Dean. Without as well as within the walls of the College, every student is required to maintain a good moral character.

7. When students are brought before the Faculty under the above rules, the Faculty may reprimand, report to parents or guardians, impose fines, disqualify from competing for prizes or honours, suspend from classes, or report to the Corporation for expulsion.

8. Any student damaging the furniture or buildings will be required to bear the expense of repairing or making good the same, and will, in addition, be subject to such other penalty as the Faculty may see fit to inflict. If individual responsibility for damage cannot be traced, a *pro rata* assessment may be made on all the students more directly concerned.

9. All cases of discipline involving the interests of more than one Faculty, or of the University in general, shall be immediately reported to the Principal, or, in his absence, to the Vice-Principal.

10. Petitions from the students to any University body on any subject can, in general, be taken into consideration only at the regular meetings appointed in the Calendar.

Conduct of Examinations.

1. The supervision of the examinations of the University is entrusted largely to officers specially appointed from year to year in sufficient numbers for the purpose. An attendant is present in the Examination Hall throughout each examination.

2. Examination papers are provided in the form of books, with covers in special colours. Each book contains a statement of the duties of candidates, and to each is attached a small envelope containing a card or slip for the name of the candidate.

3. Each colour has a number, and only one colour is employed at a given examination. A certain scheme of colours is arranged beforehand for the whole period of the examination.

4. The seating of the students is arranged in advance, and is posted at the entrance of the Hall fifteen minutes before the commencement of the examination.

5. The Faculty or a Committee of the Faculty concerned, will arrange for at least one examiner and such other paid examiners as are deemed necessary to be present in the Hall for each examination ; and will also arrange the scheme of seating and books to be used.

6. All examiners are expected to attend strictly to the supervision of the examinations while they are in the Hall.

7. They shall instruct each candidate to write the number of his table on the outside of his book ; to write his name plainly upon the card provided in the envelope on the book; to replace it and seal the envelope.

After this has been done, the examination papers are distributed. Any candidate entering late will be required to sign his card and close the envelope before receiving the examination paper.

The examiners shall also call the attention of the candidates to the rules printed upon the envelope.

8. During the course of the examinations the examiner shall verify the position of each candidate in the examination hall according to a plan.

9. For the convenience of candidates, the examiners may announce the time when half of the period allowed for the examination has expired; and also at thirty minutes and five minutes before the close.

10. Before beginning to write on the examination, candidates should write their names plainly on the slip provided in the envelope, and enclose it, fastening the envelope, and write the number of their desk or table plainly on the cover of the examination book.

11. No candidate shall be permitted to enter the examination room after the expiry of one-half hour, or leave it before the expiry of one-half hour, from the commencement of the examination. Any candidate leaving the examination room after the issue of the examination papers in any subject, shall not be permitted to return during the course of that examination.

12. Candidates guilty of any of the following or similar dishonest practices shall be immediately dismissed from the examination, and shall be liable to permanent disqualification for membership in McGill University :—

A. Making use of any books, papers, or memoranda, other than those provided by the examiners.

B. Speaking or communicating with other candidates under any circumstances whatever.

C. Exposing written papers to the view of other candidates.

The plea of accident or forgetfulness shall not be received.

13. Candidates shall write their answers on the right hand pages of the Regulation Answer Book provided for the purpose by the University, entering on the margin nothing but

the number or letter of the question they are about to answer. The left-hand page may be used for rough drafts or for scribbling puposes. No other paper than the regulation answer book above mentioned shall be used by the candidates, and no pages removed from the books.

14. Candidates are not permitted to leave their places. Should they desire anything, they may signify it by standing up.

15. When the examiner announces that the examination is over, all candidates must leave the hall. On leaving the hall, the examination books must be deposited by the candidates as directed by the examiners.

Regulations Concerning the Management of the College Grounds and Athletics.

All matters relating to the management of the College Grounds and of Out-Door Athletics and Sports are under the control of a Committee consisting of :—

One Governor.
The Principal.
One Member of the Faculty of Arts.
One Member of the Faculty of Applied Science.
One Member of the Faculty of Law.
One Member of the Faculty of Medicine.
One Graduate.
One Member of the Faculty of Comparative Medicine.
One Undergraduate, member of the Football Club.
One Undergraduate, member of the Tennis Club.
One Undergraduate, member of the Cricket Club.
One Undergraduate, member of the Hockey Club.
One Undergraduate, member of the Skating Club.
The President of the Athletic Association.

The several Members of the Committee are elected annually by their respective bodies ; and the Committee meets for organization on the third Tuesday in September in each year. The Undergraduate Members of the Committee are entitled to vote only on matters relating to Athletics.

The following extracts are made from the rules and regulations of the Committee, for the guidance of Members of the University and the several Athletic Clubs and Associations which are from time to time permitted to use the grounds:

The University and McTavish Street gates shall be closed between 6 p.m. and 7 a.m. on week days and the whole day on Sunday.

The Sherbrooke Street gates shall be closed between 10 p.m. and 6 a.m.

Such persons as are entitled to use the Grounds shall be provided with tickets renewable each year.

Those entitled to tickets are the Members of the University and prominent Benefactors, and the families of Governors and Professors.

The several Clubs shall be permitted to issue special tickets, entitling the holders to admission to the Grounds for the purpose of viewing matches, or for other special occasions of public interest.

All Students desirous of taking part in football matches, or otherwise engaging in violent athletic contests, must pass a medical examination, to be held under the direction of the Superintendent of the Gymnasium. A complete record of all such examinations shall be kept by the Superintendent or other officer appointed to this duty. The Managers and Captains of Clubs or other responsible executive officers are required to insist upon the strict observance of the rule in regard to Medical Examination, and all the rules and regulations of the Committee which concern them.

All Clubs must submit their Regulations, Rules, and By-Laws, and any changes in the same, for the approval of the Committee. They must make application for the use of such portions of the Grounds as they require, and for any special privileges.

Clubs must not engage in matches with outside clubs except with the approval of the Committee.

The Athletic Association must submit its programme for each year for the approval of the Committee.

All Students of the University are required to pay a fee of three dollars ($3.00) for the use of the Grounds. The amount so paid is handed over to the Committee, and is by it expended in the interest of College Athletics and in the permanent improvement of the portions of the grounds used for Athletics.

University Buildings.

The Centre Building.

This building, the first and oldest building of McGill College, contains the lecture-rooms of the Faculty of Arts and the Botanical Laboratories in the centre. The East Wing contains the newly equipped Zoological Laboratories, the offices of the Administration, and the lecture-rooms of the Faculty of Law. The West Wing comprises the Molson Convocation and Examination Hall and the Corporation Meeting-room.

The Botanical Laboratories are described in detail on p. 133, the Zoological Laboratories on pp. 133-4.

The Macdonald Engineering Building.

The Engineering Building, erected, equipped and endowed by Sir William C. Macdonald, represents, in architectural effect, a severe treatment of the Italian renaissance. Besides numerous lecture-rooms, students' rooms, a departmental library, and a large technical museum, which holds the Reuleaux collection of Kinematic models—believed to be the most complete in America, the building contains large and thoroughly equipped electrical and magnetic laboratories; dynamo rooms; lighting station; accumulator room; laboratories of Mathematics, Dynamics, Mechanics, Geodesy, Modelling, Testing, and Thermodynamics; workshops (in the annex erected under the bequest of the late Thomas Workman) for Carpentry, Wood-turning, and Pattern-making; Machine shops; Smithy; Foundry; etc.

The whole of one floor is given up to Drawing-rooms, and the Museum of the building contains a large collection of casts illustrative of the historical development of the various styles of architecture and of casts of architectural and figure sculpture.

A detailed description of the laboratories and workshops and their equipment is given on pp. 205 *et seqq.*

Macdonald Chemistry and Mining Building.

Admirable facilities are afforded in the Macdonald Chemistry and Mining Building for study and research in the various departments of Chemistry. The building, also erected, equipped and endowed by Sir William C. Macdonald, is spacious, admirably lighted, heated by hot water, and ventilated by means of electric fans, one placed in the basement and two in the attic. In addition to the main lecture-room, which seats about 250 students, the building contains three large general Chemical Laboratories, and a number of smaller laboratories and rooms for special purposes, including research work in Inorganic and Organic Chemistry and in Mineralogy and Petrography. Among the special laboratories may be mentioned those for Organic Chemistry, Physical Chemistry, Electrolytic Analysis, Gas Analysis, Iron and Steel Analysis, Water Analysis, Photography, Determinative Mineralogy, etc.

A detailed description of the laboratories and workshops and their equipment is given on pp. 131 *et seqq.*

The Mining and Metallurgical Laboratories are in the Chemistry and Mining building, and comprise Mining and Ore-dressing, Milling, Metallurgical Assay and wet assaying laboratories ; Lecture-rooms ; Library; Drawing-room ; etc. The machinery of these laboratories is of full size, and all investigations can be carried out in all respects under working conditions.

A detailed description of the laboratories and their equipment is given on pp. 211-213.

The Macdonald Physics Building.

The Macdonald Physical Laboratory, another of Sir William C. Macdonald's gifts to the University, contains five storeys, each of 8,000 square feet area. Besides a lecture theatre and its apparatus rooms, the Building includes an elementary laboratory nearly 60 feet square; large special laboratories arranged for higher work by advanced students in Heat and Electricity ; a range of rooms for optical work and photography; separate rooms for private thesis work by students; and two large laboratories arranged for research, provided with solid piers and the usual standard instruments. There are also a lecture room, with apparatus room attached, for Mathematical Physics, a special physical library, and convenient workshops. The equipment is on a corresponding scale, and comprises : (1) apparatus for illustrating lectures; (2) simple forms of the principal instruments for use by the students in practical work; (3) the most recent types of all important instruments for exact measurement, to be used in connection with special work and research.

A detailed description of the laboratories and their equipment is given on pp. 129-131.

Medical Buildings.

The present main building of the Faculty of Medicine was erected in 1873. In 1885, and again in 1893, large additions and alterations were made to the buildings. These again, however, have proved inadequate, and a thorough reconstruction and enlargement of the buildings is now being undertaken, a subscription of One Hundred Thousand Dollars having been generously made to this end by the Chancellor of the University in the name of Lady Strathcona and Hon. Mrs. Howard. The present buildings comprise several large lecture theatres, a large reading-room, managed by the students themselves; a fine medical library; dissecting-rooms; and a large number of completely equipped laboratories for Physiology, Histology, Pharmacology, Chemistry, and Pathology, in addition to numerous museums, preparation rooms, and offices. Clinical teaching is conducted in the theatres, wards, out-patient rooms, and laboratories of the Montreal General Hospital, the Royal Victoria Hospital, and the Montreal Maternity Hospital.

A detailed description of the laboratories and museums is given on pp. 247 *et seqq.*

The Royal Victoria College for Women.

This residential college for the Women Students of McGill University, erected and endowed by Lord Strathcona and Mount Royal, is situate on Sherbrooke Street, in close proximity to the University buildings and laboratories. The Professors and Lecturers of the University are thereby enabled to give their services in the conduct of the College classes.

Full particulars of the College, terms of residence, etc., are given on pp 141 *et seqq.*

Veterinary College.

The lecture-rooms, laboratories and pharmacy of the Faculty of Comparative Medicine and Veterinary Science are situate in Union Avenue, where hospital and daily clinics are held. An extensive out-door practice in the largest stables of the city and numerous farms also afford opportunities for clinical observation.

A detailed description of the laboratories and museums is given on pp. 308 *et seqq.*

The University Library.

Librarian :—Charles H. Gould, B.A.
Assistant Librarian :—Henry Mott.

In the autumn of 1893, the general library was moved to the noble building erected by the late Mr. Peter Redpath. The building affords ample accommodation for two hundred readers, the reading



University Library.

room being exceptionally spacious and convenient. The latter is open in the evening, and contains a reference library and leading English and Foreign periodicals.

Mrs. Peter Redpath, of the Manor House, Chislehurst, Kent, has, with great munificence, erected an important extension to the Library building, which will further improve the facilities already offered in this department.

Mrs. Redpath's gift provides not merely a large new book stack, but also additional seminary rooms and commodious quarters for a special Law Library.

The various Libraries of the University now contain upwards of 83,000 volumes, and a large number of pamphlets.

The books have been selected with a view to illustrating the several courses of University study. They are, therefore, to a considerable extent, general in character; and the Committee endeavours to provide for the symmetrical growth of the entire library.

There are, however, several large special collections, besides the departmental libraries. The late Mr. Peter Redpath was, for years before his death, engaged in forming the REDPATH HISTORICAL COLLECTION. This is still being added to by Mrs. Peter Redpath, is now of great value, and affords unusual opportunities for the study of English History. An important feature of the collection is a series of 3,500 political and religious tracts, which date from 1601 to about the middle of the last reign.

Abundant materials, bearing upon the History of Canada, have been gathered together. Of these the nucleus is formed by the entire library of the late Mr. Frederick Griffin, whose choice books were, some years ago, bequeathed to the University. This branch of the library is being steadily augmented.

The Medical Library, directly controlled by the Faculty of Medicine, is the largest of the departmental libraries, and is one of the most complete collections of its kind in the Dominion.

About 220 current periodicals, literary and scientific, are subscribed for through the various departments of the University. Besides these, the library regularly receives Serials, Transactions and Proceedings of Societies. The list of both periodicals and serials is being extended yearly.

Although the library is maintained primarily for members of the University, the Corporation has provided for the admission, upon certain conditions, of such persons as may be approved by the Library Committee. It is the desire of the Committee to make the library as useful to the entire community as is consistent with the safety of the books and the general interests of the University.

Extract from the Library Regulations.

1. During the College Session the Library is open daily (except Sundays and general public holidays), from 9 a.m. till 5 p.m.; and the Reading Room from 9 a.m. till 6 p.m., and also from 7.30 till 10.30 p.m. On Saturdays, both Library and Reading Room close at 5 p.m. During vacations, both Library and Reading Room close at 5 p.m., and on Saturdays at 1 p.m.

2. Students in the Faculty of Arts, of Law, and of Applied Science are entitled to read in the Library, and may borrow books (subject to the regulations) to the number of three volumes at one time.

3. Students in the Faculties of Medicine or Comparative Medicine, who have paid the Library fee to the Bursar, may read in the Library, and on depositing the sum of $5 with the Bursar, may borrow books on the same conditions as Students in other Faculties. They are required to present their Matriculation Tickets to the Bursar and to the Librarian.

4. Graduates in any of the Faculties, on making a deposit of $5, are entitled to the use of the Library, subject to the same rules and conditions as Students in Arts, Law, or Applied Science.

5. Books may be taken from the Library only after they have been charged at the Delivery Desk; borrowers who cannot attend personally must sign and date an order, giving the titles of the books desired.

6. Books in the Reference Library must not be taken from the Reading Room; and, after they have been used, they must be returned promptly by readers to their proper places upon the shelves.

7. Before leaving the Library, readers must return the books they have obtained to the attendant at the Delivery Desk.

8. All persons using books remain responsible for them so long as the books are charged to them, and borrowers returning books must see that their receipt is properly canacelled.

Writing or making any mark upon any book belonging to the Library is unconditionally forbidden. Any person found guilty of wilfully damaging any book in any way shall be excluded from the Library; and shall be debarred from the use thereof for such time as the Library Committee may determine.

10. Damage to or loss of books, maps, or plates, and injury of Library fixtures, must be made good to the satisfaction of the Librarian and of the Library Committee.

Damage, loss, or injury when the responsibility cannot be traced will be made good out of the caution money deposited by students with the Bursar.



University Library.—Main Reading Room.



Redpath Museum.—Interior View.

11. Should any borrower fail to return a book upon the date when its return is due, he may be notified by postal card of his default, and be requested to return the book. If the loan is not renewed, or the book returned, after a further delay of at least three days, it may be sent for by special messenger, at the borrower's expense.

12. Before the close of the session, Students in their final year must return uninjured, or replace to the satisfaction of the Librarian, all books which they have borrowed.

13. Silence must be strictly observed in the Library.

14. Infringement of any of the rules of the Library will subject the offender to a suspension of his privileges, or to such other penalty as the nature of the case may require.

The Peter Redpath Museum.

Senior Curator—Prof. B. J. Harrington, M.A., LL.D.

This building was erected in 1882 by the liberal benefactor whose name it bears. It occupies a commanding position at the upper end of the campus, and besides its central hall and other rooms devoted to the collections, contains a large lecture theatre, class-rooms, and work-rooms.

The general arrangement of the collections is as follows :—

1. The Botanical Room on the ground floor contains the Herbarium, consisting of 30,000 specimens of Canadian and exotic plants and collections illustrating structural and economic botany.

2. On the first floor is a room over the entrance hall, in which are cases containing archaeological and ethnological objects with large slabs of fossil foot-prints on the walls.

3. This room opens into the great Museum Hall, on each side of which are alcoves with upright and table cases containing the collections in Palaeontology, arranged primarily to illustrate the successive geological systems, and subordinately to this, in the order of zoological and botanical classification, so as to enable the student to see the general order of life in successive periods, and to trace any particular group through its geological history.

4. At the extreme end of the Hall are placed the collections of minerals and rocks, arranged in such manner as to facilitate their systematic study. In the centre of the Hall are economic collections and large casts and models.

5. In the upper story or gallery of the great Hall are placed the zoological collections ; the invertebrate animals in table cases in regular series, beginning with the lower forms ; the vertebrate

animals in upright cases, in similar order. The PHILIP CARPENTER COLLECTION of shells is especially noteworthy for its arrangement and completeness.

Details as to the several departments of the Museum are given in the "Museum Guide," and papers or memoirs relating to type specimens in the collections can be obtained from the Museum Assistant. Tickets are issued to students by the Professors in charge of the several departments, and classes of pupils from schools can be admitted on certain days, under regulations which may be learned from the Professors or from the Registrar of the University.

Observatory.

Latitude, N. 45° 30′ 17″. Longitude, $4^{h.}$ $54^{m.}$ $18^{s.}$ 67.

Height above sea level, 187 feet.
Superintendent—C. H. McLeod, Ma.E.

The Observatory in which courses of instruction are given in the use of meteorological instruments and in astronomical work, is situated at the head of the University campus.

Meteorological observations.—Records of temperature, atmospheric pressure, wind velocity and direction, and sunshine are obtained by self-recording instruments. Check observations are made at 7.40 a.m., 3 p.m., and 7.40 p.m. on standard instruments.

The principal instruments employed are two standard mercurial barometers; one Richard barograph; one Richard thermograph, one Callendar thermograph; one K.ew standard themometer; two Pastorelli thermometers ; one maximum thermometer ; one minimum thermometer; one set of six self-recording thermometers, with controlling clock, battery, etc.; two anemometers; one wind vane; one anemograph with battery, etc.; one sunshine recorder; one rainband spectroscope and one rain guage.

The Anemometer and Vane are on the summit of Mount Royal, at a point about three-quarters of a mile north-west of the Observatory. They are 57 feet above the surface of the ground and 810 feet above sea level.

Soil temperatures are observed, in co-operation with the Physical Laboratory, by means of platinum thermometers at depths ranging from one inch to nine feet.

The astronomical equipment consist of :—The Blackman Telescope (6¼ in.); a photoheliograph (4½ in.); a 3¼ in. transit with striding level, etc.; a prismatic (8cm.) transit instrument also arranged as a zenith telescope; a 2 in. transit in the prime vertical; two collimating telescopes; one sidereal clock; one mean time clock; one sidereal

chronometer ; one mean time chronometer ; one chronograph ; batteries, telegraph lines, and sundry minor instruments.

Observations for clock errors are made on nearly every clear night. Time exchanges are regularly made with the Toronto observatory. Time signals are distributed throughout the city by means of the noon time-ball, continuous clock-signals, and the fire-alarm bells; and to the country, through the telegraph lines.

The longitude of the Observatory was determined in 1892 by direct telegraph connection with Greenwich, with exchange of observers and instruments. The position is believed to be the most accurately determined in America.

Gymnasiums.

The University Gymnasium.

Medical Examiner and Instructor:—R. Tait McKenzie, B.A., M.D.

The classes, which are open to men Students of all the Faculties, will meet at the University Gymnasium at hours to suit, as far as possible, the convenience of Students, and to be announced at the commencement of the Session.

The recent addition of some special apparatus enables the instructor to devote some attention to the application of exercise in treating special cases of weakness or deformity, which should be reported to him before the regular class work is undertaken.

THE WICKSTEED SILVER AND BRONZE MEDALS FOR PHYSICAL CULTURE (the gift of Dr. R. J. Wicksteed) are offered for competition to Students of the graduating class and to Students who have had instruction in the Gymnasium for two sessions; the silver medal to the former, the bronze medal to the latter.

The award of these medals is made by Judges, appointed by the Corporation of the University.

Every competitor for the silver medal is required to lodge with the Judges, before the examination, a certificate of good standing in the graduating class signed by the Dean or Registrar of the Faculty to which he belongs, and the Medal will not be awarded to any Student who may fail in his examination for the degree.

The Royal Victoria College Gymnasium.

Instructor :—Miss Vendla M. Holmstrom.

Classes for Women Students are conducted in the newly equipped Gymnasium of the Royal Victoria College, see page 143.

Faculty of Arts.

THE FIRST DAY OF LECTURES, SESSION 1901-1902, WILL BE TUESDAY, SEPTEMBER 24TH.

I. Regulations for Entrance.

See pp. 11-22.

II. Scholarships and Exhibitions.*

General Regulations.

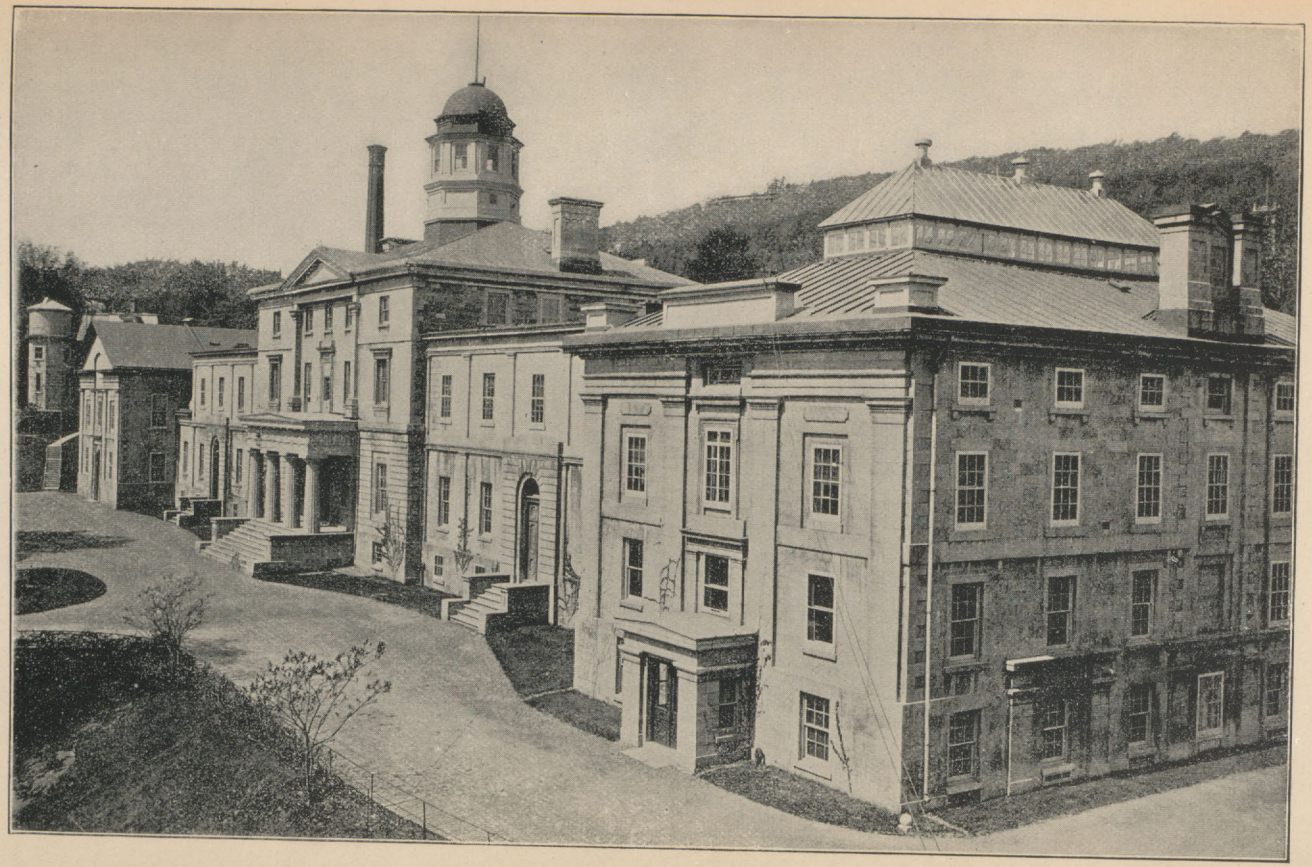
1. A Scholarship is tenable for *two* years; an Exhibition for *one* year.

2. Scholarships are open for competition to Students who have passed the University Intermediate Examination, provided that not more than three sessions have elapsed since their Matriculation; and also to Candidates who have obtained what the Faculty may deem equivalent standing in some other University, provided that application be made before the end of the Session preceding the examination.

3. Scholarships are divided into two classes:—(1) *Science Scholarships*; (2) *Classical and Modern Language Scholarships*. The subjects of examination for each are as follows:

Science Scholarships.—Mathematics—Differential and Integral Calculus; Analytic Geometry; Plain and Spherical Trigonometry; Higher Algebra and Theory of Equations. Natural Science—Botany; Chemistry; Logic. (For details, see p. 53).

* In Session 1901-1902 the Scholarship and Exhibition Examinations will begin Wednesday, September 11th.



Arts Building.

Classical and Modern Language Scholarships.—Greek, Latin, English Compositions; English Language and Literature; French or German. (For details, see p. 54).

4. Exhibitions are assigned to the First and Second Years.

First Year Exhibitions are open for competition to candidates for entrance into the First Year.

Second Year Exhibitions are open for competition to Students who have passed the First Year Sessional Examinations, provided that not more than two sessions have elapsed since their Matriculation; and also for candidates for entrance into the Second Year.

The subjects for examination are as follows:—

First Year Exhibitions.—Classics, Mathematics, English Language and Literature, French, or German.

Second Year Exhibitions.—Classics, Mathematics, English and Modern History, French or German.

5. The First and Second Year Exhibition Examinations will, for Candidates who have not previously entered the University, be regarded as Matriculation Examinations.

6. No student can hold more than one Exhibition or Scholarship at the same time.

7. Exhibitions and Scholarships will not necessarily be awarded to the candidates who have obtained the highest marks. An adequate standard of merit will be required.

8. If in any College Year there be not a sufficient number of candidates showing adequate merit, any one or more of the Exhibitions or Scholarships offered for competition may be given to more deserving candidates in another year.

9. A successful candidate must, in order to retain his Scholarship or Exhibition, proceed regularly with his College Course to the satisfaction of the Faculty.

10. The annual income of the Scholarships or Exhibitions will be paid in four instalments, viz.:—In October, December, February and April, about the 20th day of each month.

11. The Examinations will be held at the beginning of every session.

For the session of 1901-1902 there are twenty-seven Scholarships and Exhibitions, including the following:—

The Jane Redpath Exhibition, founded by Mrs. Redpath, of Terrace Bank, Montreal:—value, about $90 yearly, open to both men and women.*

Ten Macdonald Scholarships and Exhibitions, founded by Sir W. C. Macdonald, Montreal:—value $125 each, yearly.

The Charles Alexander Scholarship (for men students), founded by Charles Alexander, Esq., Montreal, for the encouragement of the study of Classics and other subjects:—value $90 yearly.

The George Hague Exhibition, given by George Hague, Esq., Montreal, for the encouragement of the study of Classics:—value $125 yearly.

The Major H. Mills Scholarship, founded by bequest of the late Major Hiram Mills:—value $100 yearly.

The Barbara Scott Scholarship, founded by the late Miss Barbara Scott, Montreal, for the encouragement of the study of the Classical languages and literature:—value, $100 to $120 yearly.

Seven Exhibitions in the Royal Victoria College, open to women only:—ranging in value from $90 to $200.

One Royal Victoria College Scholarship, for women:—value $125 yearly.

Ottawa Valley Graduates' Society Exhibition, awarded on the results of the June Examination.

The Sir William Dawson Exhibition, given by the New York Graduates' Society:—value $60.

First Year Exhibitions.

First Year Exhibitions.

The First Year Exhibition Examinations will be held at McGill College, Montreal, beginning Wednesday, 11th September; and also at any of the following centres, provided

* It is intended to put in operation as soon as possible recent resolutions throwing all Exhibitions and Scholarships open without restriction of sex, "except in cases where the deeds of gift or the ascertained wishes of the donor expressly preclude such a course; it being understood that in the event of the establishment of any large number of Exhibitions and Scholarships specially appropriated to either of the sexes by the terms of the foundation, the Board of Governors may again restrict some of those now existing in favour of the other sex."

that application in writing be made to the Secretary of the Board of Matriculation Examiners by intending candidates not later than 20th August, viz.—

Toronto, Kingston and Ottawa, Ont.; Halifax, N.S.; St. John, N.B.; Charlottetown, P.E.I.; Winnipeg, Man.; Victoria and Vancouver, B.C.; St. John's, Nfld.

No application received after 20th August will be considered.

All the other Entrance, Exhibition and Scholarship Examinations of September, 1901, will be held at McGill College only.

The following exhibitions will be offered for competition in September, 1901 :—

Four of	$125	open to	men only.
One of	115	"	" "
One of	100	"	" "
One of	90	"	" "
One of	87	"	both men and women.
*One of	90	"	women only (R.V.C.)
*One of	200	"	women only, and conditional on residence in the R.V.C.
*Three of	100	"	women only, and conditional on residence in the R.V.C.

The following are the requirements in the various subjects of examination:—

Latin.

A paper on Latin Grammar; Translation at sight from easy Latin authors; easy Latin Prose Composition; Translation from the following prescribed books:—

1901 (*a*) Cæsar, De Bello Gallico, any two of the following books, i, ii, iii.

(*b*) Virgil, Aeneid, I *or* II.

(*c*) Horace, Odes I, *or* Cicero, in Cat. I, II.

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* One or more of these exhibitions may be given to candidates entering the Second Year. A modern Language may be substituted for Greek.

*1902 (*a*) Cæsar, De Bello Gallico, IV and V.
(*b*) Virgil, Aeneid II.
(*c*) Horace, Odes I, *or* Cicero, in Cat. III, IV.

‡1903 (*a*) Cornelius Nepos, Lives of Miltiades and Epaminondas (G. H. Nall, in Macmillan's Elementary Classics).
(*b*) Cæsar, De Bello Gallico, I and II.
(*c*) Ovid, Stories from the Metamorphoses, as in Gleason's "A Term of Ovid" (American Book Company).
(*d*) Horace, Odes III.

Candidates may substitute an equivalent amount from the works prescribed for the Honour Matriculation Examination of the University of Toronto.

Greek.

A paper on Greek Grammar; Translation at sight from easy Greek authors; easy Greek Prose Composition; Translation from the following prescribed books:—

†1901 (*a*) Xenophon, Anabasis I, *or* II.
(*b*) Homer, Odyssey XV.
(*c*) Euripides, Hecuba (Sidgwick's Scenes), *or* Homer, Iliad I, *or* VI.

†1902 (*a*) Xenophon, Anabasis, I *or* II.
(*b*) Homer, Odyssey XVII.
(*c*) Euripides, Hecuba (Sidgwick's Scenes), *or* Homer, Iliad I *or* VI.

‡1903 (*a*) Xenophon, Anabasis I, the portions contained in White's Beginner's Greek Book, pp. 304-428, *or* Xonophon Anabasis II.
(*b*) Homer, Odyssey VII.
(*c*) Euripides, Hecuba (Sidgwick's Scenes).

* In 1902 candidates may substitute, for (*a*) and (*b*) together, the following Ontario subjects:—Cornelius Nepos, Lives of Themistocles and Aristides; Cæsar, De Bello Gallico IV (omitting c. 17) and V. 1-23; Virgil, Aeneid II. 1-505.

† In 1901 and 1902 candidates may substitute for (*a*) the corresponding Ontario subjects, viz:—Xenophon, Anabasis I, the portions contained in White's Beginner's Greek Book, pp. 304-428.

‡ The announcement of subjects for 1903 is made subject to the proviso that some modifications may be introduced in the event of the Examinations for Exhibitions being changed from September to June.

Candidates may substitute an equivalent amount from the works prescribed for the Honour Matriculation Examination of the University of Toronto.

In both Latin and Greek, candidates who do not offer the books prescribed above will have the option of an additional paper in Composition and Translation at Sight.

Text-books.—Sonnenschein's *or* Rutherford's Greek Grammar, *or* Burnet's Greek Rudiments, *or* White's First Greek Book; Abbott's Arnold's Greek Prose Composition; Sonnenschein's *or* Allen and Greenough's Latin Grammar; Arnold's Latin Prose Composition by Bradley, *or* Collar's Latin Composition, Pts. III and IV.

Mathematics.

1901.—*Euclid*, Bks. I, II, III, IV, with easy deductions; *Algebra*, as in Mathematics, Part I (p. 13), with the addition of the three Progressions; *Arithmetic*.

1902.—*Euclid*, Bks. I, II, III, IV and VI; Definitions of Bk. V; and easy deductions.

Algebra:—Elementary rules; Involution; Evolution; Fractions; Indices; Surds; Simple and Quadratic Equations of one or more unknown quantities.

Trigonometry:—Measurement of angles; Trigonometrical ratios or functions of one angle, of two angles, and of a multiple angle, as in Lock's Elements of Trigonometry, chaps. I-XII, or similar text-books.

English.

Grammar.—An advanced knowledge of this subject will be required, and, in addition, some acquaintance with the historical development of English, as illustrated in common and important words. The candidate is recommended to read Mason's *or* West's Elements of English Grammar and expected to supplement Mason or West by using Morris's

Historical Outlines of English Accidence (Macmillan), as a book of reference. *Literature.*—The works to be read are those selected for the Matriculation Examination with the addition of Milton's L'Allegro and other short poems, ed. Bell (Macmillan), and the following essays of Macaulay:—Ranke's History of the Popes; Frederick the Great.* *Composition.*—The Candidate will be required to write an essay on some subject connected with the literature prescribed.

French.

(*a*) Grammar, including Syntax; (*b*) Translation at sight of French into English; (*c*) Translation at sight of easy English prose passages into French; (*d*) Translation from the following texts:—

For 1901 and 1902, Sarcey, Le Siège de Paris (Heath & Co.); Sandeau, Mademoiselle de la Seiglière (Heath & Co.); About, Le Roi des Montagnes (Heath & Co.); *or*, if one month's notice be given to the Secretary of the Board of Matriculation Examiners, candidates may substitute for the foregoing texts those prescribed for the Senior Matriculation Examination of the University of Toronto *or* of Dalhousie University, and for the Leaving Examinations of Nova Scotia.

Or, instead of French:—

German.

(*a*) Grammar, Accidence and Syntax (as much as is contained in Joynes-Meissner or Van der Smissen; (*b*) Translation at sight from German into English; (*c*) Translation at sight into German of an easy passage of English prose; (*d*) Translation and grammatical study of the following texts :—

For 1901 and 1902 : Sudermann, Der Katzensteg (Heath & Co.); Schiller, Wilhelm Tell (Macmillan & Co.), *or* Lean

* For 1903:—Bacon, Addison, Warren Hastings.

der, Träumerien (Copp, Clark Co.); Gerstaecker, Germelshausen (Heath & Co.); *or*, if one month's notice be given to the Secretary of the Board of Matriculation Examiners, candidates may substitute for the foregoing texts those prescribed for the Senior Matriculation Examination of the University of Toronto *or* of Dalhousie University, and for the Leaving Examinations of Nova Scotia.

The First Year Exhibitions will be awarded to the best candidates in the above subjects, provided there be absolute merit.

But in subsequently distributing the Exhibitions of higher value among the successful candidates, work in the following subjects will be taken into account also :—

1. Latin and Greek. Higher Composition, and Translation at Sight.

2. Mathematics.—The remainder of Mathematics (Part II); see p. 15.

3. English.—Henry Morley's First Sketch of English Literature, chaps VII and VIII.

NOTE.—The First Year Exhibition Examination will be regarded as an Entrance Examination.

Second Year Exhibitions.

Five of $125 open to men only.
One of 110 " " "
Two of 100 " women only (R. V. C.)

Second Year Exhibitions.

Greek.

Lucian, Charon and Somnium (Heitland, Pitt Press); Demosthenes, Olynthiacs I and II; Euripides, Medea.

Latin.

Quintilian, X, c. 1 (Peterson, Clarendon Press, smaller edition); Cicero, De Senectute (Howson, Longmans); Horace, Odes, Bk. IV.

Greek and Latin Prose Composition, and Translation at sight.

A paper on Grammar and History.

Text-books.—Oman's History of Greece, chaps. I-XXV (to the outbreak of the Peloponnesian War) ; and How and Leigh's History of Rome, chaps. XVII-XLIV (from the First Punic War to the Death of Sulla); Abbott's Arnold's Greek Prose Composition, *or* Sidgwick's First Greek Writer; Ramsay's Latin Prose, Vol. I or similar manual.

Mathematics.

Euclid (six books); Casey's Sequel to Euclid; Algebra (Hall and Knight's Advanced); Theory of Equations (in part); Trigonometry (as in ordinary course of First Year).

English and Modern History.

Language.—Trench, Study of Words. *Literature.*—Spenser, Faerie Queene, Bk. 1, ed. Percival (Macmillan); Tennyson, Selections from Tennyson, ed. Rowe and Webb (Macmillan). *History.*—Church, The Beginning of the Middle Ages (Epochs of Modern History, Longmans). *Composition.*—The candidate will be required to write an essay on some subject connected with the literature or history prescribed.

French.

(*a*) Grammar; (*b*) Translation at sight of an English passage into French; (*c*) French composition on a prescribed subject; (*d*) a critical study of the following texts, tested by questions in the French language, to be answered in French:—

For 1901, Balzac, Eugénie Grandet; Michelet, Pages choisies (chez A. Colin, Paris); Daudet, Jack.

Or, instead of French:—

German.

(*a*) Grammar; (*b*) Translation at sight from German into English, and from English into German; (*c*) a critical

study of Die Braut von Messina, and of the lives of Schiller and Goethe; (*d*) Translation from the following texts:—

For 1901, Schiller, Die Braut von Messina, Der Neffe als Onkel; Hauff, Der Zwerg Nase (Heath & Co.); Riehl, Der Fluch der Schönheit (Heath & Co.); Benedix, Die Hochzeitsreise (Heath & Co.); Schiller, Der Neffe als Onkel; Baumbach, Die Nonna (Heath & Co.).

No Candidate who has been placed in the Third Class in more than one subject can be awarded a Second Year Exhibition.

Third Year Scholarships.

Scholarships Science

One of $125 for Mathematics and Logic, open to men and women.

One of $125 for Mathematics and Logic, open to women only (R. V. C.)

One of $125 for Natural Science and Logic, open to men and women.

Mathematics.

Differential Calculus (Williamson, chaps. 1, 2, 3, 4, 7, 9; Chap. 12, Arts. 168-183 inclusive; Chap. 17, Arts. 225-242 inclusive). Integral Calculus (Williamson), Chaps. 1, 2, 3, 4, 5; Chaps. 7, Arts. 126-140 inclusive; Chap. 8, Arts. 150-156 inclusive; Chap. 9, Arts. 168-176 inclusive. Analytic Geometry (Salmon), Conic Sections, subjects of chaps. 1-13 (omitting Chap. 8), with part of Chap. 14. Lock, Higher Trigonometry; McLelland and Preston, Spherical Trigonometry, Part. I. Salmon, Modern Higher Algebra (first four chapters). Todhunter *or* Burnside and Panton, Theory of Equations (selected course).

Logic.

As in Jevons' Elementary Lessons in Logic.

Biology.

Sach's History of Botany, 1890. Verworn, General History of Physiology; translated by F. S. Lee, 1899.

Classics and Modern Languages.

The two remaining Scholarships, open to men and women (viz., one of $100 and one of $90) are offered in Classics and Modern Languages:—

Greek.

Plato, Purves, Selections, pp. 1-21, 55-112 (Clarendon Press); Thucydides, Book VI (Marchant, Macmillan); Sophocles, Antigone (Jebb, Pitt Press; *or* Campbell and Abbott, Clarendon Press).

Prose Composition and Translation at Sight.

Latin.

Horace, Epistles, Book I (Wilkins, Macmillan); Cicero, *Pro Plancio* (Auden, Macmillan); Virgil, Aeneid, Bk. VI (Sidgwick, Pitt Press); Sallust, Catiline.

Prose Composition and Translation at Sight.

Ancient History.

Text-books.—Bury, History of Greece (Macmillan); The Peloponnesian War; How and Leigh, History of Rome to the Death of Cæsar (Longmans).

English and History.

Literature.—Shakspere, Tempest, ed. Deighton (Macmillan); Milton, Paradise Lost, Books I and II, ed. Macmillan (Macmillan); Lamb, Essays of Elia, ed. Hallward and Hill (Macmillan). *History.*—Myers, Mediaeval and Modern History (Ginn), Part I. *Composition.*—The candidate will be required to write an essay on some subject connected with the literature or history prescribed. High marks will be given for this subject.

French.

Candidates will be questioned on the subject matter of the following texts, the lives of their authors, and the literary schools which they represent. The entire examination will be held in the French language:—

For 1901, Molière, Tartuffe; Racine, Iphigénie; De Vigny, Servitude et Grandeur militaires; De Musset, Les Nuits, Pierre et Camille.

Or, instead of French:—

German.

(*a*) Grammar; (*b*) Translation at sight from English into German; (*c*) Critical study of the lives of Goethe and Schiller and of those of their works which are mentioned below; (*d*) Translations from the following texts:—

For 1901, Schiller, Don Carlos; Goethe, Dichtung and Wahrheit (Heath & Co.); Immermann, Der Oberhof (Wagner, Pitt Press); Meyer, Gustav Adolf's Page (Heath & Co.)

III. Regulations for Degrees in Arts.

Regulations for the Degree of B.A.

After passing the First Year Matriculation Examination, an Undergraduate, in order to obtain the Degree of B.A. or B.Sc., is required to attend regularly the appointed courses of lectures for four years, and to pass the required Examinations in each year. He cannot take more than the number of subjects specified for each year without the special permission of the Faculty; nor can he proceed with his course unless he passes each Examination in its assigned order. Failure in the First or Second Year in more than two subjects, and in the Third Year in more than one, will entail the passing at the beginning of the following session, of a Supplemental Examination, which shall include *all* the subjects of the previous Sessional Examination. Failure in *one* subject at this Supplemental shall necessarily cause the loss of the session. Undergraduates are arranged in Years, from First to Fourth, according to their academic standing.

1. Ordinary Course for the Degree of B A.

N.B.—The Arabic numerals refer to the numbering of the courses on pp. 75-129; for example, Greek, 2, refers to the second course given under the head of Classical Literature and History, p. 76.

First Year

First Year.

Greek, 1, *or* Latin, 1.

English, 1A, 1B, 1C.

History, 1.

Mathematics 1.

Latin, 1, *or* Greek, 1, *or* French, 1, 2, *or* German, 2.

Physics, 2.

French cannot be taken as a qualifying option in the First Year, except by students who have passed the Matriculation Examination in French.

A second Modern Language may be taken as an extra subject in the first two years. Credit will be given for it on application to the Faculty.

Advanced Sections. With a view to the encouragement of higher work, Advanced Sections will be formed in all subjects as far as practicable, and in these Honours may be awarded. Permission to take an advanced section is granted by the professor.

Students taking the work of advanced sections may be excused from the work of the corresponding ordinary sections on the recommendation of the professor. No exemptions from other subjects will be granted to students in advanced sections.

Second Year.

Second Year.

English, 2.

Latin, 2, *or* Greek, 2.

Any Three.

- **Greek, 2, *or* Latin, 2, *or* French, 3, 4, *or* German, 3.**
- **Mathematics, 3A, including Dynamics, 3B, *or* Elementary Biology, 1.**
- **Chemistry, 1, Laboratory work in addition.**
- **Logic and Psychology, 1A, 1B.**
- **Hebrew, 1, *or* German, 3.**

Advanced Sections. Advanced Sections will be formed in the Second Year, as in the First.

Third and Fourth Years.

The subjects of the Third and Fourth Years are arranged in the following divisions :—

Language and Literature.	History, Philosophy and Law.	Science.	
English, 3A and 3B; *or* 3C; 4.	History, 2.	Mathematics, 4.	
Latin, 3, 4.	Logic and Metaphysics, 2, 5.	Mechanics, Geometrical, 6A, 6B.	Two Half Courses.
Greek, 3, 4.	Moral Philosophy, 3, 6.	Optics, and Astronomy, 5A, 5B.	Two Half Courses.
Sanskrit, 1A, 1B.	Political Science, 2.	Physics:	
French, 5, 6.	Economics, 1.	Sound, Light, Heat (full course), 7A, 7B, 7C.	
German, 4, 5.	Roman Law, 1.	Electricity and Magnetism (full course), 8.	
Semitic Languages, 2, 3.	Constitutional Law and History.	Chemistry, 2, 3, 4; 5, 6, *or* 7, 8.	
Comparative Philology (half course), 1A, 1B.	Art (history of) and Archæology, (2 half courses in successive years)	Zoology 2.	
	History of Philosophy (half course), 4.	Botany, 2, 3.	
		Geology, 1.	
		Physiology, Anatomy	*In the Faculty of Medicine.*

From the above divisions six courses are to be selected by each student in the Third and Fourth Years, three in each year. Each will be studied in lecture courses extending over not more than four hours per week, with collateral reading, and, in the case of the science subjects, laboratory work. One subject chosen in the Third Year *must* be continued by every student in his Fourth Year; two subjects *may* be continued if application to that effect be granted by the Faculty or the Advisory Coommittee of the Faculty. Of the whole six courses, one must be chosen by all candidates from the list of subjects (other than Mathematics) included under the head of Science, except in cases where Chemistry or Biology has been selected as an option in the Second Year.

Every Undergraduate in the Third and Fourth Years is required to submit to the Faculty, for their approval, at the

beginning of the session, a written statement of the subjects he proposes to study during the session. He will not be allowed to discontinue any of these, if approved, or begin any other, without the special permission of the Faculty.

The Advisory Committee will meet not later than Oct. 1st in each session, and report on the selections of subjects to the Faculty. It may also report on the subjects chosen by the First and Second Years.

In order to differentiate the B.A. curriculum from that laid down for the B.Sc. (Arts), candidates for B.A. are debarred from selecting more than three out of their six courses from the Science Division. Free options are allowed in all other cases (except as far as regards the selecting of at least one subject from the Science Division), subject to approval by the Faculty, or the Advisory Committee of the Faculty.

In addition to the six courses, a course of one hour a week in English Composition (3D, 4C) must be taken by every candidate for the ordinary B.A. in the Third and Fourth Years.

For details of each subject, see Courses of Lectures, p. 74. *et seqq.*

A Candidate who seeks to obtain an Ordinary B.A. Degree of the First Class must fulfil the following conditions: he must not only obtain the required aggregate of marks (viz., three-fourths of the maximum), but he must also obtain First Class standing in three of the departments, and not les than Second Class in the remainder.

Professional Students.

For arrangements enabling Students in Medicine or Applied Science to take the course in Arts also, and obtain B.A., with B.Sc. (Applied Science), or M.D., in six years, see pp. 65-68.

2. Honour Courses for the Degree of B.A.

Honours Courses.

Honours of First, Second, or Third Rank will be awarded to successful candidates in any Honour Course established by the Faculty, provided they have passed creditably the ordinary Examinations in all the subjects proper to their year.

No Undergraduate is permitted to attend the Honour lectures unless (*a*) he has been placed in the First Class in the subject at the preceding Sessional Examination, if there be one; (*b*) has satisfied the Professor that he is otherwise qualified; and (*c*) while attending lectures makes progress satisfactory to the Professor. In case his progress is not satisfactory, he may be notified by the Faculty to discontinue attendance.

A candidate for Honours must take the Ordinary Course in the subject in which he is reading for Honours.

Honour lectures are open to all Partial Students who can satisfy the Professor of their fitness to proceed with the work of the course. Such students will not be ranked with Undergraduates in the Examination lists.

No student is allowed to attend two Honour Courses without the special permission of the Faculty.

Third Year and B.A. Honours.

A candidate for Honours in the Third Year, in order to obtain exemptions, must have taken a First-Class at the Ordinary Sessional Examinations in the subject in which he proposes to compete for Honours, *or* a First or Second Class in the Advanced Section of that subject; must stand higher than Third Class in not less than half of the remaining subjects, and have no failure in any subject. In addition to the Ordinary subject specified above, he is required to take a second Ordinary subject, to be chosen from any division.

A student who has taken First or Second Rank Honours in the Third Year, and desires to be a Candidate for B.A. Honours, shall be required to take only one subject in the Ordinary Course, viz., that in which he is reading for Honours. A Candidate, however, who at the B.A. Examinations obtains Third Rank Honours, will not be allowed credit for these exemptions at the end of the Session, unless the examiners certify that his knowledge of the whole Honour Course is sufficient to justify it.

Note.—For subjects of Ordinary Course, see p. 57.

The following are the departments in which Honour Courses are at present offered. Students who desire to graduate with Honours in any of them are strongly recommended to take the Advanced Sections of the Department in the First and Second Years, where such are provided.

(N.B.—The numbers which stand after the Academic years refer to the corresponding number of the Courses given on pp.

1. Classical Literature and History.

Third Year Honours. Greek, 5, 6.
Latin, 5, 6.
Fourth Year Honours. Greek, 5, 7.
Latin, 5, 7.

2. English Language and Literature.

Third Year Honours, 5, 6.
Fourth Year Honours, 7, 8, 9; or 10, 11, 12, 13.

3. History.

Third Year Honours, 2, 5, 7, 9 (see p. 106).
Fourth Year Honours, 5, 7, 9 (see p. 106).

4. Modern Languages.

Third Year Honours, French, 7 or 8; 9.
German, 6 or 7; 8.
Fourth Year Honours, French, 7 or 8; 9.
German, 6 or 7; 8.

5. Semitic Languages.

Third Year Honours, 4*a* and 4*b*.
Third Year Additional, 4*b* without Literature.
Fourth Year Honours, 5*a* and 5*b*.
Fourth Year Additional, 5*b* without Literature.

6. Mental and Moral Philosophy.

Third Year Honours, 7.
Fourth Year Honours, 8, 9.

7. Mathematics and Natural Philosophy.

Third Year Honours, 11, 12.
Fourth Year Honours, 8, 13, 14.

8. Experimental Physics.

Third Year Honours, 7, 8, 15.
Fourth Year Honours, 16.

9. Geology and Mineralogy.

Third Year Honours, Mineralogy, 1, 3.
Fourth Year Honours, Mineralogy, 2.
Fourth Year Honours, Geology, 2, 3A, 3B, 4, 5, 6.

10. Chemistry.

Third Year Honours, 2, 3, 4.
Fourth Year Honours, 5, 6, 7, 8; or 7, 8, 9.

11. Biology.

Third Year Honours, { Botany, 4. / Zoology, 2, 3.

Fourth Year Honours, { Botany, 5. / Zoology, 4.

Students proceeding to Honours Biology in the Third and Fourth Years will take Chemistry and Biology in the Second Year, one half course of Organic Chemistry in the Third Year, and one half course of Geology in the Fourth Year.

3. Ordinary Course for the Degree of B.Sc. (Arts.)

First Year.

The English, French, German, Mathematics and Physics of the ordinary B.A. Course.

Second Year.

English of the B.A. course in Second Year.
French, German, Chemistry.
Mathematics *or* **Elementary Biology.**

After passing the Intermediate examination, the candidate for a B.Sc. degree will specialize in the subjects enumerated under the "Science" group of options in the B.A. curriculum. His choice of subjects will be determined according as he may intend to follow mainly the line of mathematico-physical studies or physico-chemical or biological, or geological.

IV. Examinations.

(A) College Examinations.

For Students of McGill College only.

1. There are two examinations in each year, viz., at Christmas and at the end of the Session. Successful students are arranged in three classes at the Sessional examinations.

Christmas Examinations will be held in all the subjects of the First and Second Year, and are obligatory on all Undergraduates, and also on all Partial Students intending to gain undergraduate standing. At the Sessional Examinations, twenty-five per cent of the marks will be assigned for the results of the Christmas Examinations. Candidates who fail in courses of the First and Second Years, terminating at Christmas, will be required to pass at the Sessional Examinations on an extra paper in the subject in which they have failed.

Christmas Examinations in the Third or Fourth Years may be held at the option of the Professors.

In the Fourth Year only, there is no Sessional Examination; the University Examination for B.A. or B.Sc. takes its place.

2. Undergraduates who fail in one subject at the Sessional Examinations of the First or of the Second Year are required to pass a Supplemental Examination therein the following September. Should they fail in this Examination, they must in the following Session attend the Lectures and pass the Examination in the same subject, in addition to the regular course, or pass the Examination only, without attending Lectures, at the discretion of the Faculty.



Macdonald Physics Building.

3. Failure in two or more subjects at the Sessional Examinations of the First or of the Second Year, or in one subject at the Third Year Sessional Examinations, involves the loss of the Session. The Faculty may permit the student to recover his standing by passing a Supplemental Examination at the beginning of the following Session.

4. Examinations Supplemental to the Sessional Examinations will be held in September, simultaneously with the Matriculation Examinations.

5. A list of those to whom the Faculty may grant Supplemental Examinations in the following September will be published after the Sessional examination. The time for the Supplemental Examination will be fixed by the Faculty; the examination will not be granted at any other time, except by special permission of the Faculty, and on payment of a fee of $5.

(B) University Examinations.

For the Degree of B.A.

After passing the Matriculation Examination at entrance, candidates for the Degree of Bachelor of Arts must pass each of the four Sessional Examinations, including the Intermediate Examination at the end of the Second Year. Under the provisions of the new curriculum, the Third and Fourth Year Sessional Examinations constitute the Final.

Matriculation Examination.

1. The subjects are stated on pp. 11-22.

Intermediate Examination.

2. The subjects are as follows:—

(a) **English**;
(b) **Greek** *or* **Latin**;
(c) **Latin** *or* **Greek** *or* **a Modern Language.**
(d) **Mathematics, including Dynamics,** *or* **Elementary Biology.**
(e) **Chemistry.**
(f) **Logic and Psychology.**
(g) **Hebrew** *or* **German.**

} **Any Three.**

English.

The course for the second year. See p. 87.

Greek.

Thucydides, Selections from Book III (Spratt, Pitt Press); Homer, Odyssey IX (Edwards, Pitt Press); Sophocles, Electra (Jebb, Longmans, *or* Campbell and Abbott, Clarendon Press); Prose Composition and Translation at sight of Greek (easy narrative) into English. General questions will also be set,—in History, on the Period of Athenian Supremacy, Cox's Athenian Empire (Longmans' Epochs of Ancient History), with Abbott's Pericles (Putnams), and in Literature on the outlines as contained in Jebb's Primer of Greek Literature (pp. 1 to 100), (Macmillan).

A paper will also be set early in October on the Summer Readings, Lucian, Charon and Somnium (Heitland, Pitt Press.) *See p. 76.*

Latin.

Cicero, King's Select Orations (Clarendon Press); Virgil, Aeneid IX (Haigh, Clarendon Press); Horace, Historical and Political Odes (Church, Blackie); Latin Prose Composition and Translation at sight of Latin into English. History: The last century of the Republic, B.C. 133-31; as in Beesley's "The Gracchi, Marius and Sulla" (Longmans' Epoch Series), and "The Roman Triumvirates" (Merivale, Longmans' Epoch Series). Literature: Wilkins' Primer (Macmillan).

A paper will also be set early in October on the Summer Readings, Quintilian, X ,c. I. *See p. 80.*

Mathematics.

Arithmetic, Euclid, Books, I, II, III, IV, VI and defs. of Bk. V.—Algebra, including Quadratic equations; the three Progressions; Ratio, Proportion and Variation; Permutations and Combinations; Scales of Notation; Logarithms; Interest and Annuities; Elements of Determinants; Geometrical Conic Sections.—Solid Geometry. (Euclid, Bk. XI, and first two Props. of Bk. XII or equivalent); Spherical Trigonometry.

Dynamics.

Projectiles; Impact; Simple Harmonic Motion; Simple and Compound Pendulum; Energy of Rotation.

Chemistry.

The course for the second year. See pp. 116-7.

Logic and Psychology.

The course for the second year. See pp. 108-9.

Hebrew.

The course for the second year. See p. 102.

3. Final Examination.

The qualifying subjects for the B.A. Degree will under the New Curriculum consist of the six subjects taken up in course in the Third and Fourth Years (p. 57).

V. Regulations for Courses in Arts Leading into the Professional Faculties.

Arts and Applied Science.

1. Any student intending to claim the privileges offered below, is required, at the beginning of the session, to present to the Dean of the Faculty of Arts a certificate of registration in the Professional Faculty, and to produce at the end certificates of attendance and examination in the professional classes specified.

2. Undergraduates beginning the Third Year in Arts who have taken all the Ordinary Mathematics of the first two years, and the Chemistry of the Second Year, and who wish to pursue their professional studies in the Faculty of Applied Science so as to obtain the Degrees of B.A. and B.Sc. (App. Sc.) within the following four years, may be exempted by the Faculty of Applied Science from the Mathematics of the first year in Applied Science and from Chemistry of the Second Year.

3. They are allowed to distribute the course of the Third and Fourth Years in Arts over three years.

4. They may complete the Arts curriculum by taking the following courses:—

I. *In the Third Year:*—
- (*a*) Physics of Third Year.
- (*b*) Either one or two of the courses which are not placed under the heading "Science" in the Arts curriculum.
- (*c*) Either one or two hours weekly in English Composition.*

II. *In the Fourth Year:*—
- (*a*) Physics of Fourth Year.
- (*b*) One of the courses which are not placed under the heading "Science" if only one has been taken in the Third Year.
- (*c*) One hour weekly in English Composition, if only one has been taken in the Third Year.
- (*a*) The Mathematics of the Second Year Applied Science (6 hours weekly as 1½ courses).

III. *In the Fifth Year:*—

The Mathematics of the Third Year Applied Science (2 hours weekly as a half course), or another course under the heading "Science" in the Arts curriculum.

*NOTE.—Students are recommended to distribute their English work over two years.

Arts and Medicine.

1. Undergraduates beginning the Third Year, who have taken the Chemistry and Biology of the Second Year, and who wish to pursue their professional studies in the Faculty of Medicine so as to obtain the Degrees of B.A. and M.D. within the following four years, may be exempted by the Faculty of Medicine from the subjects of Chemistry and Physics, and Biology in the First Year of the Faculty of Medicine.

2. They may complete the Arts curriculum by taking the following courses:—

I. *In the Third Year:*—

(*a*) Anatomy and Practical Anatomy, Histology and Physiology, of First Year Medicine.

(*b*) Either one or two of the courses which are not placed under the heading "Science" in the Arts curriculum.

(*c*) Either one or two hours weekly in English Composition.*

II. *In the Fourth Year:*—

(*a*) Anatomy and Practical Anatomy, Histology, Physiology, Chemistry, of Second Year Medicine.

(*b*) One of the courses which are not placed under the heading "Science" if only one has been taken in the Third Year.

(*c*) One hour weekly in English Composition, if only one has been taken in the Third Year.*

3. The Faculty strongly recommends intending students of Medicine who do not take the combined six years' course to spend a preliminary year in the study of the non-professional subjects, *i.e.*, Biology, Chemistry, and Physics, before entering on the curriculum in the Faculty of Medicine.

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*NOTE.—Students are recommended to distribute their English work over two years.

Arts and Law.

Students intending to go forward to the Faculty of Law are recommended to include in their Third and Fourth Years Arts, such subjects as Constitutional Law and History, Economics, Political Science, and Roman Law.

Literate in Arts.

A certificate of "Literate in Arts" will be given along with the professional degree in Medicine or Applied Science, to those who have completed two years' study in the Faculty of Arts, and have passed the prescribed examinations.

Students of the University Attending Affiliated Theological Colleges.

Affiliated Theological Colleges.

1. These students are subject to the regulations of the Faculty of Arts in the same manner as other students.

2. The Faculty will make formal reports to the governing body of the Theological College which such students may attend as to:—(1) their conduct and attendance on the classes of the Faculty; and (2) their standing in the several examinations; such reports to be furnished after the Examinations, if called for.

3. Students of affiliated Theological Colleges who are pursuing a double course in Arts and Divinity (six years at least) will take in the Third and Fourth Years the courses which constitute the ordinary curriculum in Arts, less a half course in each of these Years, or a whole course in either.

VI. Medals, Prizes, Classing, and Certificates.

1. Gold Medals will be awarded in the B.A. Honour Examinations to Students who take the highest Honours of the First Rank in the subjects stated below, and who shall have passed creditably the Ordinary Examinations for the Degree of B.A., provided they have been recommended therefor to the Corporation by the Faculty on the report of the Examiners:—

The Henry Chapman Gold Medal for Classical Languages and Literature.

The Prince of Wales Gold Medal for Mental and Moral Philosophy.

The Anne Molson Gold Medal for Mathematics and Natural Philosophy.

The Shakspere Gold Medal for the English Language and Literature.

The Logan Gold Medal for Geology, Mineralogy and Palæontology.

The Major Hiram Mills Gold Medal for a subject to be chosen by the Faculty from year to year.

In addition to the above, certain medals are offered annually by the Alliance Française, at the discretion of the Department of Modern Languages.

If there be no candidate for any Medal, or if none of the candidates fulfil the required conditions, the Medal will be withheld, and the proceeds of its endowment for the year may be devoted to prizes in the subject for which the Medal was intended. For details, see announcement of the several subjects below.

2. **Special Certificates** will be given to those Candidates for B.A. who have been placed in the First Class at the ordinary B.A. Examination; have obtained three-fourths of the maximum marks in the aggregate of the studies proper to their year; are in the First Class in not less than half the subjects, and have no Third Class. At this examination, no Candidate who has taken exemptions (see pp. 66-7) can be placed in the First Class unless he has obtained First Class in four of the departments in which he has been examined, and has no Third Class.

3. **Certificates** of High General Standing will be granted to those Undergraduates of the first two years who have obtained three-fourths of the maximum marks in the aggregate of the studies proper to their year, are placed in the First Class in not less than half the subjects, and have not more than one Third Class. In the Third Year the conditions are the same as for the Special Certificate for B.A.

4. Prizes or Certificates will be given to those Undergraduates who have distinguished themselves in the studies of a particular class, and have attended all the other classes proper to their year.

5. Graduates who attend lectures in any subject, and pass the corresponding Examinations therein, may obtain certificates of their standing, whether the course in question be Ordinary, Advanced or Honour.

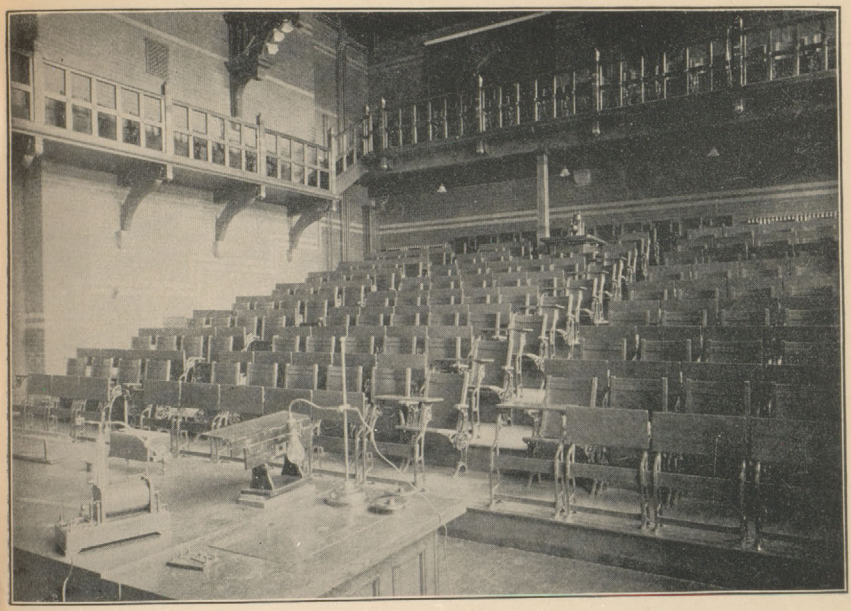
6. His Excellency the Earl of Minto has been pleased to offer annually during his term of office a Gold Medal for the study of Modern Languages and Literature.

The Regulations for the Gold Medal are as follows:—

(1) The subjects for competition shall be the French and German languages and literatures.
(2) The course of study shall extend over two years, viz., the Third and Fourth Years.
(3) The successful Candidate must be capable of speaking and writing both languages correctly.
(4) There shall be examinations in the subjects of the course in both the Third and Fourth Years, at which Honours may be awarded to deserving Candidates.
(5) The general conditions of competition and the privileges as regards exemptions shall be the same as for the other Gold Medals in the Faculty of Arts.
(6) Students from other Faculties shall be allowed to compete, provided they pass the examinations of the Third and Fourth Years in the above subjects.
(7) Candidates desiring to enter the Third Year of the Course, who have not obtained first-class standing at the Intermediate or Sessional Examinations of the Second Year in Arts, are required to pass an examination in the work of the first two years of the Course in Modern Languages, if called on to do so by the Professors.
(8) The subjects of examination shall be those of the Honour Course in Modern Languages.

6. The Neil Stewart Prize of $15 is open to all Undergraduates and Graduates of this University, and also to Graduates of any other University, who are students of Theology in some College affiliated to this University. The rules which govern the award of this prize are as follows:—

(1) The Candidate must pass, in the First Class, a thorough examination upon the following subjects: Hebrew Grammar; reading and translation at sight from the Pentateuch, and from such poetic portions of the Scriptures as may be determined.
(2) There will be two Examinations of three hours each—one in Grammar and the other in Translation and Analysis.



Macdonald Physics Building.—A Lecture Theatre.



Macdonald Physics Building.—An Elementary Electrical Laboratory.

(Course for the present year: Hebrew Grammar (Gesenius; Translation and Analysis of Exodus; Isaiah XL. to the end of the book.)

(3) In case competitors should fail to attain the above standard, the prize will be withheld, and a prize of $30 will be offered in the following year for the same.

This Prize, founded by the late Rev. C. C. Stewart, M.A., and terminated by his death, was re-established by the liberality of the late Neil Stewart, Esq., of Vankleek Hill.

7. Early English Text Society's Prize.—This prize, the annual gift of the Early English Text Society, will be awarded for proficiency in the subjects of the language group in the English Honour curriculum of the Third and Fourth Years.

8. New Shakspere Society's Prize.—This Prize, the annual gift of the New Shakspere Society, open to Graduates and Undergraduates, will be awarded for a critical knowledge of the following plays of Shakspere :—Hamlet; Macbeth; Othello; King Lear.

9. Charles G. Coster Memorial Prize.—This Prize, intended as a tribute to the memory of the late Rev. Chas. G. Coster, M.A., Ph.D., Principal of the Grammar School, St. John, N.B., is offered by Colin H. Livingstone, B.A., to Undergraduates (men or women) from the Maritime Provinces, Nova Scotia, New Brunswick and Prince Edward Island. In April, 1901, it will be awarded to that Undergraduate of the First, Second or Third Year, from the above Provinces, who, in the opinion of the Faculty, has passed the most satisfactory Sessional Examinations, under certain conditions laid down by the donor.

10. Annie McIntosh Prize.—The income of the sum of $425, subscribed by the pupils and friends of the late Miss Annie M. McIntosh, will be offered as a prize to students of the Royal Victoria College in such subject or for such work as the Faculty may determine.

11. Science Scholarships Granted by Her Majesty's Commission for the Exhibition of 1851.—These scholarships of the

value of £150 a year are tenable for two or, in rare instances, three years. They are limited, according to the Report of the Commission, "to those branches of Science (such as Physics, Mechanics and Chemistry) the extension of which is specially important for our national industries." Their object is not to facilitate ordinary collegiate studies, but "to enable students to continue the prosecution of science with the view of aiding in its advance or in its application to the industries of the country."

Six nominations to these scholarships have already been placed by the Commissioners in 1891, 1893, 1895, 1897, 1899 and 1901, at the disposal of McGill University, and have been awarded.

When nominations are offered, they are open to Students of not less than three years standing in the Faculty of Arts or of Applied Science, and are tenable at any University or at any other Institution approved by the Commission.

12. The names of those who have taken Honours, Certificates or Prizes will be published in order of merit, with mention, in the case of Students of the First and Second Years, of the schools in which their preliminary education has been received.

VII. Summer Classes.

During the months of May and June, a series of Summer Classes will be conducted, intended mainly in the first instance, to meet the requirements of students in the first two years of their course. The subjects offered are English, Latin, Greek, Mathematics, Logic, French, and German. A fee of eight dollars will be exigible for any one class, and of four dollars for each additional class.

VIII. Fees.

All fees and fines are payable to the Bursar.

The fees must be paid to the Bursar, and the receipts shown to the Dean within a fortnight after the commencement of attendance in each session. In case of default, the student's

name will be removed from the College Books, and can be replaced thereon only by permission of the Faculty, and on payment of a fine of $2.

Undergraduates matriculated before May, 1898, and Partial Students who have entered the affiliated Theological Colleges before May, 1898, and are pursuing the curricula of such Colleges, are subject to the old scale of fees.

1. Undergraduates and Conditioned Students.—$61 per session. This will include the fee for Laboratory work, Library, Gymnasium and Athletics, and Graduation. In the Third and Fourth Years, it will cover the normal amount of practical instruction given in each subject having a Laboratory Course.

Matriculation fee for entrance into the Second Year, $10, in addition to the sessional fee.

2. Partial Students.—(First and Second Years.)—$16 per session for one course of lectures, including the use of the Library; $12 per session for each additional course; $8 per session for each half-course. In addition there will be a fee of $3 for Athletics.

3. Partial Students.—(Third and Fourth Years.)—$22 per session for one course of lectures, including the use of the Library and Athletics; $20 per session for each additional course; $11 per session for each half-course. In addition there will be a fee of $3 for Athletics.

The lectures (and laboratory work, if any) in one subject in any one of the four College years constitute a "Course," if occupying three hours per week, a "Half-Course" if occupying less than three hours per week.

Partial Students taking the full curriculum in any one year pay the same fees as Undergraduates in that year.

4. Graduates in Arts of this University are allowed, on payment of one-half of the usual fees, to attend all lectures, except those for which a special fee is exigible. For Bachelors of Arts proceeding to M.A. by taking for one year a graduate course of study, the fee is $40. This will cover Laboratory work.

5. Caution Money.—Every student is required to deposit with the Bursar the sum of $5 as caution money for damage done to furniture, apparatus, books, etc.

Special Fees.

Elocution (optional)	$5 00
Gymnasium (for partial students)	2 50
Supplemental Examination, at the regular date fixed by the Faculty	2 00
Supplemental Examination, when granted at any other time than the regular date fixed by the Faculty	5 00
Certificate of Standing, if granted to a student on application	1 00
Certificate of Standing, if accompanied by a statement of classification in the several subjects of examination	2 00

All applications for certificates must be addressed to the Registrar of the University, accompanied by the required fee.

No certificates are given for attendance on lectures unless the corresponding examinations have been passed.

All fees for Supplemental Examinations must be paid to the Bursar, and the receipts shown to the Dean before the examination.

All fines are applied to the purchase of books for the Library.

VI. COURSES OF LECTURES.

Classical Literature and History.

Professors:—W. Peterson, M.A., LL.D.
Frank Carter, M.A.
Associate Professor:—A. J. Eaton, M.A., Ph.D.
Lecturers:—S. B. Slack, M.A.; H. N. Sanders, M.A.

In this department, the work of the first two years is divided mainly between exercise in Grammar and Composition and the reading of selected authors. The attention of

the student is at the same time directed to the collateral subjects of History, Literature, Antiquities, and Geography, in connection with which various text-books are recommended, as specified below.

In the Third and Fourth Years (as also in the Honour Courses) the instruction takes more of the lecture form, and an attempt is made to give a connected view of the leading branches of ancient literature, and the most important phases of ancient life and thought.

Students may be examined on the whole of the work prescribed for each class, even though it may not have been overtaken in lecture.

Subjects are suggested for Summer Readings in the various branches of class work. Students are strongly recommended to undertake these subjects during their long vacation, and credit will be given for them at an examination held in the first week of October .

Students are also recommended to devote some part of the vacation to the subjects set down under the head of History and Literature, which will form part of the Sessional Examinations.

Greek.

Ordinary First Year.

1. In this class, besides a review of grammatical principles (Rutherford's Greek Grammar, Accidence), portions of some Greek authors—*e.g.*, Xenophon, Homer, Herodotus, Lucian, and Euripides—are read and explained.

For 1901-02, the work will be Plato, Crito (Adam, Pitt Press); Homer, Iliad, XXII (Edwards, Pitt Press); Euripides, Alcestis (Blakeney, Bell & Co.) For *Composition*, the manual used will be North & Hillard's Greek Prose Composition (Rivingtons); for *Translation at Sight*, written and oral, Turner's Latin and Greek Passages (Longmans).

History.—From B.C. 560 to 479, Cox's "Greeks and Persians" (Longmans' Epoch Series).

Four hours a week.

Second Year.

2. The work of the Second Year will be selected mainly from the Greek Dramatists, and from Thucydides, Plato or Demosthenes.

Subjects for 1901-02 :—

Summer Readings.—Lucian's Charon and Somnium (Heitland, Pitt Press). Students are also recommended to work through some portion of Burnet's Greek Rudiments (Longmans).

Sessional Lectures.—Thucydides, Selections from Book III (Spratt, Pitt Press); Homer, Odyssey IX (Edwards, Pitt Press); Sophocles, Electra (Jebb, Longmans, or Campbell & Abbott, Clarendon Press). The practice of *Composition and Translation at Sight* will be continued as before; North & Hillard's Greek Prose Composition (Rivingtons), and Jerram's Anglice Reddenda (First Series).

History.—The Athenian Supremacy; Cox's "Athenian Empire" (Longmans' Epoch Series), with Abbott's "Pericles" (Putnam).

Literature.—Outlines as contained in Jebb's Primer of Greek Literature, pp. 1-100.

Four hours a week.

The following books are recommended for general use during the first two years of the course:—Jebb's Introduction to Homer (Maclehose); Jebb's Primer of Greek Literature, supplemented by readings in Murray, Jevons or Mahaffy; Gow's Companion to School Classics (in part); Oman's History of Greece (Longmans), or Bury's (Macmillan); Mahaffy's Primer of Greek Antiquities; and Tozer's Primer of Classical Geography (Macmillan); Rutherford's Greek Grammar (Accidence and Syntax); or Sonnenschein's (Parallel Grammar Series), or Burnet's Greek Rudiments.

Students should provide themselves also with Kiepert's Atlas Antiquus.

Third Year.

3. Under the provisions of the new curriculum Greek is one of the subjects which may be offered as one of the six

courses during the Third and Fourth Years together. The increased time which will thus be given to it will make it possible to add to the reading of selected authors and the practice of Composition and Translation at Sight short courses of lectures on subjects of general interest in the departments of History, Philosophy, Literature, Art and Antiquities. One fourth of the whole time of the Class (*i.e.*, one hour a week) will be devoted to such lecture-courses.

For the Session 1901-02, the course will be as follows:—

a. Summer Readings.—Sophocles, Antigone (Jebb, Pitt Press, or Campbell & Abbott, Clarendon Press).

b. History, Literature, Art and Antiquities.—Courses will be delivered on two of the following three:—

(1) Development of the Greek Drama—12 Lectures.

(2) An outline sketch of Greek Philosophy—12 Lectures.

(3) History of Greece from the accession of Alexander the Great—12 Lectures.

These lectures will be illustrated, where possible, by lantern slides or photographs, while many of the best works on classical antiquities will also be accessible to the student in the College Library.

c. Authors.—Kynaston's Greek Elegiac Poetry (Macmillan); Aristophanes, The Knights (Merry, Clarendon Press); Plato, Laches, Charmides and Lysis (Newhall, The American Book Company).

d. For practice in *Composition,* Sidgwick's Introduction to Greek Prose will be used; for *Translation at Sight,* Tod and Longworth, Passages for Unseen Translation (Longmans).

Four hours a week.

Fourth Year.

4. Subjects for 1901-02:—

Summer Readings.—Merriam's "The Phaeacians of Homer" (Harpers).

The remainder of the course will be the same as for the Third Year.

The following books are recommended for general use: Gow's Companion to School Classics (Macmillan); Bury's History of Greece (Macmillan); Jebb's Growth and Influence of Classical Greek Poetry (Macmillan); Campbell's Guide to Greek Tragedy (Percival); Abbott's Pericles (Putnam); Haigh's The Attic Theatre (Clarendon Press); Cornish's Concise Dictionary of Greek and Roman Antiquities (Murray); Jevons' or Mahaffy's or Murray's History of Greek Literature; Kiepert's Manual of Ancient Geography (Macmillan); Greenidge's Constitutional History; King & Cookson's Comparative Grammar (Clarendon Press).

Students taking Comparative Philology as a half course in either the Third or Fourth Year may in that year omit from the prescribed courses in Greek, or Latin, or Greek and Latin together, one author and two of the short courses under the head of History, Literature, Art and Antiquities.

Honours. Third and Fourth Years.

5. The work of the Honours Classes in Greek has been so arranged as to admit of separate courses of lectures being given, with illustrative readings, along certain main lines of literary study, in addition to supplementary work as provided for below. In 1901-1902 the Lecture courses will be as under, the books selected for class reading being specified under each separate head:—

A. Epic Poetry: The Composition of the Iliad, with a special study of Books I, XI, XVIII, XXIII. Editions recommended: Il. I-XII (Leaf, Macmillan), with Il. XIII-XXIV (Leaf & Bayfield, Macmillan).

B. History: Thucydides VII (Marchant, Macmillan).

C. Drama: Aeschylus, Agamemnon (Sidgwick, Clarendon Press).

Three hours a week.

Translation at Sight.—Fox & Bromley's Models and Exercises (Clarendon Press).

Prose Composition.—Sidgwick, and from Dictation.

Seminary Work.—Essays and Lectures on History, Literature, Comparative Philology and Ancient Philosophy.

Third Year.

6. *Private Reading.*—Plato, Purves's Selections, pp. 1-21, and 55 to 112 (Clarendon Press); Thucydides VI (Marchant, Macmillan); Sophocles, Antigone (Jebb, Pitt Press; or Campbell & Abbott, Clarendon Press).

In *History* the examination will be directed to testing a general knowledge of the course of Greek History to the death of Alexander, and a more minute knowledge of the development of the Athenian Constitution and the period of Athenian Supremacy. In *Literature*, a general knowledge will be expected of the course of Greek literature, and a more minute knowledge of the lives and writings of the authors prescribed.

Fourth Year.

7. *Private Reading.*—Sophocles, Trachiniae (Jebb, Cambridge Press); Herodotus, Book VII (Butler, Macmillan); Aristophanes, Frogs (Merry, Clarendon Press); Attic Orators (Jebb's Selections, Macmillan); Aristotle, Ethics I, II, and X (Bywater, Oxford); Theocritus, I, II, IV, XI, XV (Kynaston, Clarendon Press).

History, Literature and Antiquities.—Oman, Bury, Symonds, Murray; Jebb's Growth and Influence of Classical Greek Poetry; Leaf's Companion to the Iliad; Butcher's Aspects of the Greek Genius; Mahaffy's Social Life in Greece; Jebb's Attic Orators.

Grammar and Philology.—Goodwin's Greek Moods and Tenses, and Giles's Short Manual of Philology (Macmillan); Monro's Homeric Grammar (Clarendon Press).

British School of Classical Studies at Athens.

This University is a contributor to the support of this School, which affords facilities for archæological and classical investigation, and study in Greece. Graduates in Arts of McGill University are accordingly entitled to special privileges and advantages as regards tuition in the School.

Latin.

Ordinary First Year.

1. In this class, besides a general review of grammatical principles (Sonnenschein's Latin Grammar; Parallel Grammar Series), portions of some Latin author,—such as Ovid, Tibullus, Livy, Sallust, Virgil, Horace or Cicero—are read and explained.

For 1901-02, the subjects will be Nepos, Lives of Miltiades, Themistocles, and Aristides (Shuckburgh, Cambridge Press); Ovid, Selections from Tristia (Simpson, Pitt Press); Roman Life in Latin Prose and Verse, by Peck & Arrowsmith (The American Book Company). For practice in *Composition,* both written and oral, the text-book in use during the first two years will be North and Hillard's Latin Prose Composition (Rivington's); and for *Translation at Sight,* Turner's Latin and Greek Passages (Longmans). *History.*—Carthaginian Wars, B.C., 263-146; Shuckburgh's History of Rome, or "Rome and Carthage" (Longmans' Epoch Series).

Four hours a week.

Second Year.

2. For 1901-02, the subjects will be:—

Summer Readings.—Quintilian, X, c. 1, being Quintilian's review of Ancient Literature (Peterson, Clarendon Press, smaller edition).

Students are also recommended to continue the practice of Prose Composition (North and Hillard).

Sessional Lectures.—Cicero, Select Orations (King, Clarendon Press); Horace, Historical and Political Odes (Church, Blackie); Virgil, Aeneid IX (Haigh, Clarendon Press). *Composition and Translation at Sight,* North & Hillard's Latin Prose Composition (Rivingtons); and Ritchie's Easy Passages (Longmans).

History.—The last Century of the Republic, B.C. 133-31; as in Beesly's "The Gracchi, Marius and Sulla" (Longmans' Epoch Series), and "The Roman Triumvirates" (Merivale, Longmans' Epoch Series).

LITERATURE.—The subject matter of Quintilian X, chap. 1, §§ 37-131.

Four hours a week.

The following books are recommended for general use during the first two years of the course: How and Leigh's History of Rome (Longmans'); Strachan-Davidson's Cicero; Warde-Fowler's Cæsar (Putnam); Wilkins' Primer of Roman Literature; Wilkins' Primer of Roman Antiquities; Latin Grammar, Gildersleeve and Lodge.

Students should provide themselves also with Kiepert's Atlas Antiquus.

Third Year.

3. Under the provisions of the new Curriculum, Latin is one of the subjects which may be offered as one of six courses, during the Third and Fourth Years together. The increased time which will thus be given to it will make it possible to add to the reading of selected authors and the practice of Composition and Translation at Sight short courses of lectures on subjects of general interest in the departments of History, Philosophy, Literature, Art and Antiquities. One-fourth of the whole time of the Class (*i.e.*, one hour a week) will be devoted to such lecture-courses.

For the Session 1900-1901, the course will be as follows:

a. SUMMER READINGS.—Virgil, Aeneid VI (Sidgwick, Pitt Press).

b. HISTORY, LITERATURE AND ANTIQUITIES.—Courses will be delivered on at least two of the following three subjects:—

(1) Roman Life and Character—12 Lectures.
(2) The Last Century of the Republic—12 Lectures.
(3) History of Roman Literature from the end of the Republic—12 Lectures.

These lectures will be illustrated, where possible, by lantern slides or photographs, while many of the best works on classical antiquities will also be accessible to the student in the College Library.

c. AUTHORS.—Cicero, Letters to Atticus II (Pretor, Pitt Press), with the Speeches Pro Marcello, Pro Ligario, and Pro Rege Deiotaro (Fausset, Clarendon Press); Juvenal, Selections (Duff, Pitt Press); Plautus, Captivi (Lindsay, Clarendon Press).

d. For practice in *Composition,* Sargent's Easy Latin Prose Exercises (Clarendon Press), and from dictation; and for *Translation at Sight,* Tod and Longworth, Passages for Unseen Translation (Longmans).

Four hours a week.

Fourth Year.

4. Subjects for 1901-02:—

SUMMER READINGS.—Horace, De Arte Poetica (Wilkins, Macmillan).

The remainder of the course will be the same as for the Third Year.

NOTE.—The following books are recommended for general use: Gow's Companion to School Classics (Macmillan); Mackail's Latin Literature (Murray); How & Leigh's History of Rome (Longmans); Pelham's Outlines of Roman History (Percival); Capes' Early Roman Empire (Longmans' Epoch Series); Cornish's Concise Dictionary of Greek and Roman Antiquities (Murray); Kiepert's Manual of Ancient Geography (Macmillan); Bennett's Appendix to Latin Grammar.

Students taking Comparative Philology as a half course in either the Third or Fourth Year may in that year omit from the prescribed courses in Latin, or Greek, or Latin and Greek together, one author and two of the short courses under the head of History, Literature, Art and Antiquities.

Honours. Third and Fourth Years.

5. As in Greek, the work of the Honours Classes in Latin has been so arranged as to admit of separate courses of lectures being given, with illustrative readings, along certain main lines of literary study, in addition to supplementary work as provided for below. In 1901-1902, the Lecture

Courses will be as under, the books selected for class reading being specified under each separate head:—

A. Epic Poetry: Virgil, Aeneid VII, VIII, IX (Sidgwick, Pitt Press); Lucan, Pharsalia, VI (Heitland & Haskins, Pitt Press); Statius, Thebais XI.

B. History: Livy, Book I (Seeley, Clarendon Press); Tacitus, Annals, XIII-XVI (Furneaux, Clarendon Press).

C. Lyric and Elegiac Poetry: Horace, Odes i and iii (Gow, Pitt Press); Catullus (Macnaghten & Ramsay, Duckworth & Co.)

Three hours a week.

Translation at Sight.—Fox & Bromley's Models and Exercises (Clarendon Press). *Prose Composition.*—Selected passages.

Seminary Work.—Essays and Lectures on History, Literature, Comparative Philology and Ancient Philosophy.

Third Year.

6. *Private Reading.*—Horace, Epistles I (Wilkins, Macmillan); Cicero, Pro Plancio (Auden, Mcamillan); Virgil, Aeneid VI (Sidgwick, Pitt Press); Sallust, Catiline (Cook, Macmillan).

History.—A general knowledge of Roman History to the end of the First Century A.D., and a more minute knowledge of the period from B.C. 146 to the Death of Augustus.

Literature.—A general knowledge will be expected of the course of Roman Literature, and a more minute knowledge of the lives and writings of the authors prescribed.

Fourth Year.

7. *Private Reading.*—Plautus, Rudens (Sonnenschein, Clarendon Press); Cicero, Tusculan Disputations I, II, and pro Milone (Clark, Clarendon Press); Terence, Hauton Timorumenos (Gray, Pitt Press); Merry's Fragments of Early Latin Poetry (Clarendon Press); Quintilian, Book X (Peterson, Clarendon Press).

History, Literature and Antiquities.—How & Leigh's History of Rome (Longmans); Tyrrel's Latin Poetry; Students' Companion to Latin Authors (Middleton & Mills, Macmillan).

Grammar and Philology.—Lindsay's Short Historical Latin Grammar (Clarendon Press) and Giles's Short Manual of Philology (Macmillan); Lindsay's Textual Emendation (Macmillan).

Sanskrit.

LECTURER:—HENRY NEVILL SANDERS, M.A.

The two courses in Sanskrit are primarily intended for students who have passed the Intermediate examination, but permission may in certain other cases be obtained to attend the elementary course.

1. A. For beginners, the work mainly consisting in the mastering of the elements of Sanskrit Grammar with such composition as tends to fix in the mind the knowledge thus acquired. Etymological references will be frequently made and comparisons suggested in order at once to familiarize the language and give it an educational value in spite of the elementary nature of the course. This course counts as a half-course qualifying for the degree, and it is especially recommended to students attending the half-course in Comparative Philology.

Two hours a week.

1. B. For those students who have already passed through Course A or its equivalent in Sanskrit preparation; one hour per week is devoted to Lectures on Indian Literature, commencing (1901-2) with the Post Vedic Period. Two hours are devoted to reading selections; one hour to grammar and composition bearing especially on the texts read. Course B counts as one full course to the Final; courses A and B together, one and one-half, the student taking up Course B not being debarred thereby from repeating a course in another department.

Four hours a week.

Books required: Perry, Sanskrit Primer; Whitney's Sanskrit Grammar; Lanman's Sanskrit Reader (Ginn & Co.) For reference: Sanskrit Literature, A. A. Macdonell (Heinemann).



Macdonald Chemistry and Mining Building.

Summer Readings.—A course of Summer Readings will be suggested according to individual needs. During the months of May and June Mr. Sanders will be glad to give his personal supervision to students of Sanskrit and is prepared to give lectures if due notice is given.

Comparative Philology.

LECTURERS:— { DR. EATON. / MR. SLACK.

1. A.—INTRODUCTORY COURSE.—25 Lectures.

This course will deal with the following subjects: the history of the Science of Comparative Philology; the Indo-Gemanic languages and their classification and relation to one another; the origin of the so-called Aryan people and their primitive home and culture; the nature of compounds; the phenomenon of Ablaut and its importance in explaining apparent irregularities of declension and conjugation; the existence of external Sandhi in the Indo-Germanic languages; and the influence of Analogy and Contamination in the formation of words. The lectures will then go on to consider the Phonology of the Indo-Germanic languages in detail.

1. B. COMPARATIVE GRAMMAR OF GREEK AND LATIN.—25 lectures.

This course will deal more exclusively with the history and structure of these languages and their relation to the other members of the group.

It is primarily intended for Honour Students in the Classics, and for such others as may be found to be qualified.

Certain exemptions in the Classical Courses *see pp. (78, 82)* *are allowed to students taking the lectures in Comparative Philology, enabling them to make a full course by combining it with either Greek or Latin, or two full courses by combining it with both.*

English Language and Literature.

PROFESSOR :—CHAS. E. MOYSE, B.A.

ASSOCIATE PROFESSOR :—P. T. LAFLEUR, M.A.

LECTURER :—J. W. CUNLIFFE, D.LITT.

TUTOR (ROYAL VICTORIA COLLEGE) :—SUSAN E. CAMERON, M.A.

Ordinary First Year.

1. A. ENGLISH COMPOSITION.—A course of lectures, chiefly synthetical, on the principles of English composition, with special reference to the use of words and the construction of sentences and paragraphs. Regular essays are required of all students. Text-Book:—Nichol's Manual (or an equivalent). One hour a week.

1. B. ENGLISH LANGUAGE.—Lectures will be given on the origin of English and its relation to other languages. While the method of treatment will be historical rather than philological, the course will aim at making the student acquainted with the leading features of English at the main stages of its development. Toller's "Outlines of the History of the English Language" (Cambridge Series) will be used for reference, and the illustrative extracts from English authors will be studied. One hour a week.

1. C. ENGLISH LITERATURE.—Studies of authors and masterpieces of English literature in a course of about twenty-five lectures. For 1901-1902, the subject will be the leading prose Essayists of England from Bacon to Goldsmith. The treatment is critical rather than biographical, the intention being to explain the origin and growth of essay writing as a characteristic form of modern literary expression, together with the causes which have assisted in permanently establishing its popularity. Incidentally, this course proves ancillary to (1. A) through the opportunity which it offers of discussing analytically the style of the authors under examination. Students will study Craik's Prose Specimens and other special selections from the authors discussed. Two hours a week during the first term.

1. D. European History.—See page 103.

2. English Literature.—The course will present an outline of English Literature from the Anglo-Saxon Period to the present day, and will be illustrated by printed syllabuses and lantern slides. The general subject will be divided into four periods (Pre-Chaucerian, Italian, French, Popular), and be approached for the most part through literary types. Students are recommended to use Morley's Charts of English Literature. Three hours a week. **Second Year.**

Fortnightly Essays will be required on subjects set in connection with the lectures and will be taken into account in determining the standing of students at the end of the session.

3. A. English Literature.—Shakspere and the Later Elizabethan Dramatists.—The aim of this course is to extend and deepen the student's knowledge of the Elizabethan drama. Shakspere's growth in tragic power and intensity will be illustrated by a comparative study of "Romeo and Juliet," "Hamlet," "Macbeth" and "King Lear"; the relation of these plays to their sources will also be considered. The question of Shakpere's collaboration with Fletcher will be discussed in connection with "Henry VIII." and "The Two Noble Kinsmen," and attention will be directed to some of the other plays ascribed to Shakspere. Students are expected to make themselves familiar with the text of all the plays named above, and further suggestions as to reading will be given along with the lectures on Ben Jonson, Beaumont and Fletcher, Massinger and Ford. Two hours a week. **Third and Fourth Years.**

3. B. A course on Poetry and the Drama in England from 1660 to 1789, with special and detailed reference to changes in literary ideals and expression during the period discussed. The lectures will include poets, from Dryden to Crabbe; dramatists, from the writers of Heroic plays to Sheridan. Students will be called upon to pay special atten-

tion to the following works: Dryden, Absolom and Achitophel; Pope, The Dunciad and The Rape of the Lock; Thomson, The Seasons (one book); Cowper, The Task (one book); Crabbe, The Borough (four divisions); Dryden, Essay of Dramatic Poesy; Addison, Cato; Goldsmith, She Stoops to Conquer; Sheridan, The School for Scandal. Two hours a week.

3. C. English Language.—The course will consist mainly of the translation and examination of the English Language in its earliest distinctive stages, and may be taken instead of any two courses in English Literature. From time to time the relation of English to other Teutonic languages will be illustrated. A few Early English texts will be studied with the view of elucidating the later history of English. There will be a series of illustrated lectures in which various details of literature and aspects of life in the period under investigation will be exhibited.

Text-Books:—Sweet, Anglo-Saxon Primer; Anglo-Saxon Reader (the whole). Morris, Specimens of Early English, Part II, Extt. I, II, VI, VII, IX. Four hours a week.

3. D. English Composition.—An advanced course on English Composition, including style, methods and principles of literary criticism treated from the historical point of view, and an introduction to the comparative study of literature in accordance with the most recent results of contemporary thought and research. In connection with this course students will be examined in a course of prescribed readings. Essays at stated periods are required of all.

Books of reference and authorities:—Saintsbury's History of Criticism; Lessing, Sainte-Beuve, Brunetière, Arnold, Ruskin, Worsfold. One hour a week.

Third and Fourth Years.

4. A. English Literature.—A course on the Leading Poets of the Nineteenth Century. The chief aspects of the French Revolution will be considered, and Republican feeling in England illustrated, chiefly from the works of Wordsworth, Coleridge and Southey. The indirect revolutionary

poets Byron and Shelley will then be considered, and their typical poems, together with those of the poets already mentioned, critically examined. The remainder of the course will be given to Scott, Keats, Tennyson, Browning and Swinburne. Two hours a week.

The following poems have been selected for private reading. A paper will be set on them at the sessional examination of the Fourth Year:

Wordsworth:—The Scholars of the Village School of ——; Two April Mornings; The Fountain; The Peak of Weatherlam, in the Prelude—("One Summer evening (led by her) I found," Book I); Lucy Poems; "Earth has not anything—;" Hart-leap Well; Tables Turned; Lines written in early spring; To my Sister; Excursion—The Vision in the Skies, ("So was he lifted gently from the ground," Book II); The Child and the Shell, ("I have seen a curious Child," Book IV); Laodamia; "It is a beauteous evening"; "The world is too much with us"; "Scorn not the Sonnet"; "Milton, thou shouldst be living"; Daffodils; The Yarrow Poems. Coleridge:—Dejection; Ode to France; Lines to a Gentleman, composed on the Night after his Recitation of a Poem on the Growth of an Individual Mind; Love; Youth and Age; Fancy in Nubibus; Christabel; Hymn before sunrise in Vale of Chamouni. Scott:—Lady of the Lake; Wild Huntsman; Fire King. Byron:—A Distant View of Harrow on the Hill; Childish Recollections; Manfred; Childe Harold, Canto I. Keats:—Isabella; Ode to a Grecian Urn; Chapman's Homer. Shelley:— Ode to the West Wind; The Cloud; The Skylark; Alastor; Ozymandias; Adonais. Tennyson:—The Princess; In Memoriam. Browning:—Christmas Eve and Easter Day; Saul; Johannes Agricola; Pictor Ignotus; Fra Lippo Lippi; Andrea del Sarto; The Bishop orders his Tomb at Saint Praxed's Church; Bishop Blougram's Apology.

4. B. A general course on the history of English Prose Fiction from Richardson to the middle of the nineteenth cen-

tury, treating of the various forms successively given to English novels during the period, and the influences that stimulated or otherwise affected such productions. While students are expected to show particular knowledge of English masterpieces in this kind, frequent reference to cognate works by continental writers will also demand some familiarity with contemporary European literature. Portions of the following works will be selected for detailed study and discussion: Richardson, Clarissa Harlowe; Fielding, Amelia; Goldsmith, The Vicar of Wakefield; Godwin, Caleb Williams; Walpole, The Castle of Otranto; Thackeray, Henry Esmond. *Books of Reference*: Raleigh, The English Novel; Dunlop, History of Fiction; Tuckerman, Jeaffreson. Two hours a week.

4. C. English Composition.—The statement respecting 3 D (p. 88), indicates the method and character of this course, which is regarded as a continuation of the course in the Third Year.

Honours. Third Year. Honour students of the Third Year will take courses 5 and 6 in addition to the ordinary English requirements of the Third year in language *and* literature.

5. Chaucer, Spenser and Milton.—Chaucer will be considered with reference to the social life of his time, which will be illustrated from his works, chiefly from the Prologue to the Canterbury Tales. He will then be discussed with the view of bringing out not only his intrinsic merits, but his connection with French and Italian literature and his relations to his predecessors and successors in English poetry.

Students will read the following works for examination: Prologue to the Canterbury Tales; The Knightes Tale; The Parlement of Foules; The Hous of Fame.

Two hours a week up to Christmas.

After Christmas, Spenser and Milton will be studied, first in relation to the political and religious life of their times, and afterwards as to their poetic development and influence.

Students will read the following works for examination: Mother Hubberds Tale; Colin Clouts Come Home Again; Epithalamium; Faerie Queene, Bk. 1; Milton's English Poems of the First Period (to 1637); Paradise Lost, Bks. I and II.

Two hours a week.

6. Prose writers before Dryden.—The main object of the course will be to discuss the chief literary influences visible in the Pre-Restoration writers of English prose and to examine characteristics of style. The subject will be treated chronologically. As the course is largely interpretative and critical, facts of biography will be used only when they illustrate points of moment.

Students will read the following works for examination: More, Utopia; Sidney, An Apologie for Poetry (Cook); Lodge, Rosalynd (Collier's Shakespeare's Library); Bacon, New Atlantis; Earle, Microcosmographie (Arber); Milton, Areopagitica (Hales).

Two hours a week.

Honours. Fourth Year.

Honour students of the Fourth year will select Language *or* Literature.

Language.—The main subjects of study will be Anglo-Saxon, Middle English and Mœso-Gothic. Elementary courses may be given in Icelandic and Old Saxon if thought desirable.

7. Anglo-Saxon.—The whole of *Béowulf* will be read in class and illustrated by notes on origins, philology and textual emendations. *Text-Book:* Harrison and Sharp's *Béowulf* (Ginn). Students will read selected portions of other poems for examination. Anglo-Saxon prose will be studied mainly in the translation of Gregory's Pastoral Care and Ælfric's Homilies. Students will be guided in the examination of dialectal texts and referred to important articles in periodical literature dealing with that subject and also with the field of Anglo-Saxon generally.

Three hours a week.

8. Middle English.—The course is intended to give a knowledge of dialectal English and to illustrate the changes the language has undergone. The texts given in Morris's Specimens of Early English, Part I, and Morris and Skeat's Specimens of Early English, Part II, may be regarded as the chief material for study. A list of books of reference and of important monographs will be given at the commencement of the course.

Two hours a week.

9. Mœso-Gothic.—The course on Mœso-Gothic is intended to open the way to the comparative study of allied Teutonic languages. Particular attention will be given to the phonological relations of Mœso-Gothic and Anglo-Saxon. *Text-Books:* Wright, Primer of the Gothic language; Ulfilas (Heyne).

Literature.—The courses in Literature deal mainly with the post-Restoration period. Two of them are of general character and two are limited to individual authors. The latter may be supplemented by courses on Wordsworth and Tennyson.

10. Modern Prose Writers.—After a short sketch of the earlier history of English prose, attention will be directed to the development of periodical literature and the rise of journalism. The influence of leading essayists upon their contemporaries and successors will be analysed, with special reference to the works of Carlyle, Ruskin, Matthew Arnold and Robert Louis Stevenson. Some account will be given of modern newspaper organization and its relation to present-day literature.

Students will read the following works for examination: Carlyle, Heroes and Hero Worship; Ruskin, Crown of Wild Olives; Arnold, Essays in Criticism, Second Series (Macmillan); Stevenson, Virginibus Puerisque.

Two hours a week..

11. Comparative Literature.—A course of lectures on the influence of English literature upon the continent of

Europe, chiefly during the eighteenth and nineteenth centuries. The treatment discusses mainly the historical development of ideas, but examines also corresponding modifications regarding literary method and form.

Voltaire, Letters concerning the English Nation; Elton, The Augustan Age; Texte, Jean Jacques Rousseau and the Cosmopolitan Spirit in Literature (tr. Matthews); Brunetière, L'Evolution des genres.

Two hours a week.

12. Shakspere.—The history of Shaksperean criticism, textual and æsthetic, will be traced from its beginnings in England and Germany to the present time. Students will be directed to make themselves acquainted by private reading with the most important problems and results of modern research.

Two hours a week before Christmas.

13. Browning.—After Christmas there will be a course on Browning. The lectures will aim at explaining the character of the poet's genius, his view of the poetic art, and his outlook on the life and thought of his time. Several of the shorter poems will be selected for study in class, chiefly from the "Dramatic Lyrics," and a detailed list for private reading will be given at the opening lecture.

Two hours a week.

Department of Modern Languages.

Lecturers: Hermann Walter, M.A., Ph.D.; Leigh R. Gregor, B.A., Ph D.; E. T. Lambert, B.A.

Sessional Lecturer:—J. L. Morin, M.A.

Tutor (Royal Victoria College):—Mlle. Milhau, Lic. Univ. Fr.

A.—French.

Owing to the position which this University occupies in the midst of a very large French-speaking population, there is a permanent demand for courses of a practical, conversational character; for the same reason, the Department profits by the

co-operation of French church services, French family life, French newspapers, French literary clubs, public lecture courses in the French language.

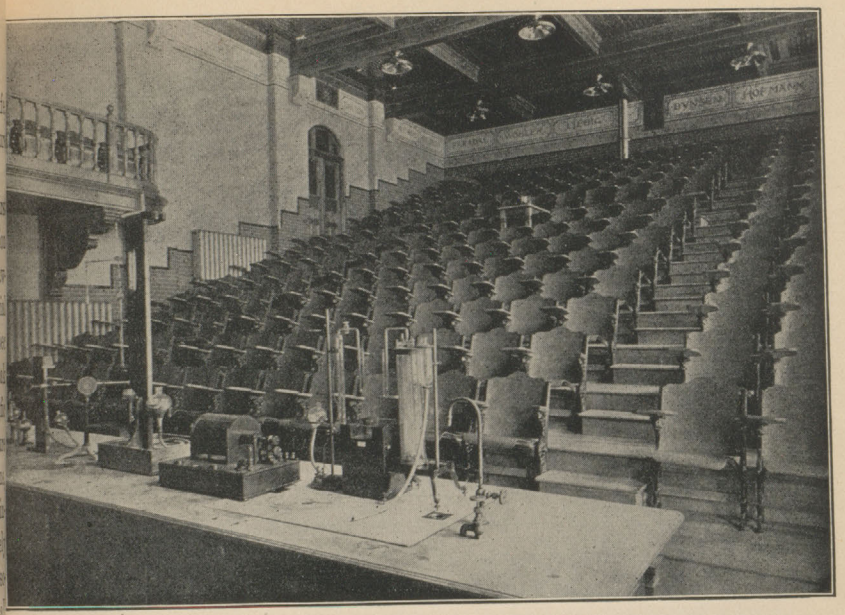
The following dual courses (extending through the first two years) are the outcome of a gradual process of adaptation of the work of the Department to its circumstances. In drawing them up, the Staff has endeavoured to meet the special needs of the professional men of the Province of Quebec (every student being given the opportunity to learn to speak French), and also to provide for the maintenance of scientific methods. In Course 1 the study of Grammar and Literature is carried on in accordance with the usual academic traditions, the French language being however largely used in class instruction. In Course 2, the same subjects are taught solely in the French language, and more in accordance with the so-called Natural method. In the Third and Fourth years all lectures are given and all studies carried on in French.

Students will take as part of their Honour Course in Modern Languages the Third and Fourth Year Ordinary Course in History and that part of Section 1. A of the Course on Comparative Philology (p. 85), which deals with the general principles of linguistic development.

Ordinary. First Year.

1. French Composition.—Bertenshaw and Janau's Manual (Longmans), including the prose passages for translation into French appended thereto. The following texts will be read and studied: Sandeau, Mademoiselle de la Seiglière (Heath & Co.); La Fontaine, Fables (Holt & Co.); Mérimée, Colomba (Macmillan); Molière, L'Avare (Macmillan); Daudet, Trois Contes (Heath & Co.).

2. This Course includes:—(*a*) the oral reproduction of stories by French authors; (*b*) biographical sketches of leading writers, illustrated by typical selections from their works, which in some cases will be committed to memory; (*c*) points of grammar treated incidentally; (*d*) notes on the great events of French history; (*e*) the following texts, which will be made the subject of conversation, analysis, *résumés*, etc.:



Macdonald Chemistry Building.—A Lecture Theatre.



Macdonald Chemistry Building.—A Laboratory.

Pages Choisies d'Alexandre Dumas (ed. Colin); Pailleron, Le Monde où l'on s'ennuie (Jenkins); Guizot, Récits.

Students are recommended to use Le Dictionnaire Larousse.

There will be regular written exercises.

The examination for the students of affiliated colleges will include the whole of Course 1 and the whole of the texts prescribed in Course 2. Equivalents for the remainder of Course 2 will be stated on application.

Four hours weekly, two for each Course.

Second Year.

3. Summer Readings.—George Sand, La petite Fadette (Holt & Co.).

French Composition.—Bertenshaw and Janau's Manual, including the prose passages for translation into French appended thereto. Dumas, La Question d'Argent (Allyn and Bacon); Racine, Britannicus (Masson, Hachette); V. Hugo, Les Misérables (Ginn & Co.); Loti, Pêcheur d'Islande (Rivington, Percival & Co.); notes on a few of the great names and on the principal schools of French Literature.

There will be regular written exercises in composition and translation.

4. This Course resembles Course 2 in its main features.

The texts are:—Molière, Les Femmes Savantes (Roche, Hachette); Victor Hugo, Ruy Blas (Heath & Co.); Michelet, Pages Choisies (ed. Colin).

The examination for the students of affiliated colleges will include the whole of Course 3 and the whole of the texts in Course 4. Equivalents for the remainder of Course 4 will be stated on application.

Four hours weekly, two for each Course.

Third and Fourth Years.

These courses will consist mainly in the study of French Literature, which as far as possible will be compared with that of other European countries. Typical selections from the works of great writers of every period, and the whole of the subjoined lists of texts, will be read and studied. There will be regular oral and written French compositions on literary subjects.

Summer Readings.—Sarcey, Le Siège de Paris (Heath & Co.).

1901-1902. 5. Literature of the 18th and 19th Centuries.

Voltaire, Prose (Heath & Co.); Rousseau, Lettre à d'Alembert sur les spectacles (Hachette); Beaumarchais, (Le Barbier de Séville (Clarendon Press); Victor Hugo, Hernani (Heath & Co.); De Musset, Poésies et Comédies (Ginn & Co.); Renan, Pages choisies (Colin); Flaubert, Trois Contes.

1902-1903 6. Literature up to the end of the 17th Century.

Corneille, Horace (Brette, Hachette), Cinna, (Clarendon Press); Racine, Britannicus (Masson, Hachette); Molière, Le Bourgeois Gentilhomme (Hachette); Boileau, L'Art poétique (Hachette); Bossuet, Oraison funèbre sur le Prince de Condé; Mme de la Fayette, La Princesse de Clèves.

N.B.—In order to be admitted to the above classes a student must understand French well enough to take lectures delivered in that language.

Four hours weekly.

Honours. Third and Fourth Years. The work of the Honours Classes in French is divided into three Sections. The First includes the Historical study of the French Language, the Second, the History of French Literature, the Third, French Composition and the Reading and Study of French Texts. The First and Second Sections are taken up in alternate years, the Third annually. Students of the Third and Fourth Years take lectures together. The texts prescribed in Course 9 are divided between the two years as may appear advisable. In order to obtain Honours, candidates must be able to speak French fluently.

Philology. 1901-1902. 7. This course will deal with the Historical development of the French language from its origin to the present day. The Old French Period will receive special attention, and in this connection the oldest texts, Serments de Strasbourg, Cantilène de Sainte Eulalie, short portions of the Passio Christi, Vie de Saint Léger, Vie de Saint Alexis (Koschwitz, Les plus anciens monuments de la langue française, and Gas-

ton Paris, Vie de Saint Alexis), and longer extracts from the Chanson de Roland (Gaston Paris), will be read and interpreted. Students will receive assistance in acquiring a fair reading knowledge of Old French subsequent to the *Roland*. Provençal grammar will necessarily be referred to and it may be possible to overtake the reading of Provençal texts (Bartsch, Chrestomathie). Peculiarities of Canadian speech will also be noticed. Students will make constant use of Schwan's Altfranzösische Grammatik (revised by Behrens), Darmesteter's Cours de Grammaire Historique, Nyrop's Grammaire Historique and Horning's Grammar prefixed to Bartsch's Chrestomathie. A large and carefully chosen Romance library is placed at their disposal.

Three hours weekly.

History of Literature. 1902-1903

8. Inasmuch as the Ordinary Course provides a comprehensive survey of French Literature, Honour Students will be required to make a special study of certain men, movements and periods; to write *résumés* in the French language of Chapters of the larger Literary Histories dealing with limited periods, of Biographies, Articles in the Critical Reviews, Monographs, etc.

A special course will be delivered on the history of French Fiction.

Three hours weekly.

Texts and Composition.

9. Composition.—Students will receive special instruction in the Art of Composition. They will be required to write a number of French papers on literary and other subjects.

Texts.—Students will find it necessary to read a considerable number of the following texts during their summer holidays, and are strongly recommended to make a beginning in the summer which precedes their Third Year Course. A critical knowledge of the contents is required.

Pascal, Lettres provinciales I, IV, XIII (Brunetière, ed. Hachette); Mme de Sévigné, Lettres choisies (Régnier, ed. Hachette); Corneille, Le Menteur, Polyeucte; Molière, Le

Malade Imaginaire, Le Misanthrope; Racine, Les Plaideurs, Athalie; Boileau, Oeuvres poétiques (Brunetière, ed. Hachette); Bossuet, Oraisons funèbres (Rébelliau, ed. Hachette); La Bruyère, Caractères (Servois et Rébelliau, ed. Hachette); Fénelon, Lettre à l'Académie française; Voltaire, Brutus, Tancrède; Rousseau, Extraits en prose (Brunel, ed. Hachette); Selections from Diderot, Extraits (Hachette); Beaumarchais, Le Mariage de Figaro; Bernardin de Saint-Pierre, Paul et Virginie ; Chénier (Selections) ; Chateaubriand, Génie du Christianisme (Selections); Mme de Staël, De l'Allemagne (Selections); Victor Hugo, Hernani, Ruy Blas, Notre Dame de Paris (Warren, ed. Holt); Lamartine (Selections); De Vigny, Sel. from Poèmes antiques et barbares; Chatterton, Cinq-Mars (Sankey, ed. Heath); George Sand, Le Marquis de Villemer, La Mare au Diable; Balzac, Le curé de Tours (Holt & Co.); Augier, Maître Guérin; Leconte de Lisle (Selections); Sully-Prudhomme (Selections); Taine, Origines de la France contemporaine (Holt & Co.); E. and J. de Goncourt, Pages choisies (Colin); Zola (Selections; Maupassant, Contes choisis; Rostand, L'Aiglon.

Two hours weekly.

B. German.

The ordinary Courses mainly keep practical ends in view. As far as possible they enable the student to study the language from within. In the first two years special attention is given to Grammar, in the Third and Fourth to Literature. Texts are carefully studied, from the aesthetic and critical as well as from the historical and linguistic points of view. A considerable amount of translation is done in class, English-German exercises in the prescribed text-book on Grammar being supplemented by the translation into German of easy prose passages and the " re-translation " of texts. Importance is attached to correct and expressive reading aloud.

Ordinary. Beginners' Course.

1. The Joynes-Meissner German Grammar, including all English-German exercises and appended prose passages for

translation into German (Heath & Co.); Huss, German Reader (Heath & Co.); Leander, Träumereien (Heath &Co.); Uhland, Ballads (Macmillan); Freytag, Die Journalisten (Holt & Co.); Schiller, Maria Stuart (Heath & Co.); Storm, Immensee (Heath & Co.).

Tutorial classes conducted during May and June enable students to overtake work not completed by the close of the Winter Session.

Four hours weekly.

2. The Joynes-Meissner German Grammar (Heath & Co.); Wildenbruch, Das edle Blut (Heath & Co.); Uhland, Ballads and Romances (Macmillan & Co.); Freytag, Die Journalisten (Holt & Co.); Schiller, Maria Stuart (Heath & Co.); Storm, Immensee (Heath & Co.); Horning's German Composition; a few well-known German poems will be committed to memory; dictation; colloquial exercises. Prominence is given to written work. **First Year**

Four hours weekly.

3. Summer Readings.—Baumbach, Der Schwiegersohn (Heath & Co.). **Second Year**

The Joynes-Meissner German Grammar; Schiller, Wilhelm Tell (Heath & Co.); Das Lied von der Glocke (Holt & Co.); Goethe, Hermann und Dorothea (Heath & Co.); Scheffel, Der Trompeter von Säkkingen (Heath & Co.); Keller, Romeo und Julia auf dem Dorfe (Heath & Co.); Freytag, Aus dem Staate Friedrichs des Groszen (Heath & Co.); notes on a few of the great names of German Literature, such as Otfried von Weissenburg, Das Nibelungenlied, Wolfram von Eschenbach, Martin Luther, Martin Opitz, Klopstock, Lessing, Herder, Goethe, Schiller, Heine. Prominence is given to written exercises, which include prose passages for translation into German from Horning's German Composition.

Four hours weekly.

4. Summer Readings.—Riehl, Der Fluch der Schönheit (Heath & Co.). **Third and Fourth Years.**

1901-1902. Goethe, Iphigenie (Heath & Co.); Lessing, Nathan der Weise (Heath & Co.); Schiller, Don Carlos; Heine, Die Harzreise, Eichendorff, Aus dem Leben eines Taugenichts (Heath & Co.); Translation of prose passages from English into German ; History of German Literature from the middle of the 18th Century to our own day (Kluge).

1902-1903 5. Goethe, Egmont (Ginn & Co.); Schiller, Wallenstein's Lager and Wallenstein's Tod (Holt & Co.); Heine, White's selections from his poems (Heath & Co.); Sudermann, Der Katzensteg (Heath & Co.); Grillparzer, Sappho (Macmillan). Translation of prose passages from English into German; History of German Literature up to the middle of the 18th Century (Kluge).

Four hours weekly in each year.

Honours. Third and Fourth Years. The work of the Honours Classes in German is divided into three Sections. The First includes, broadly speaking, the Historical study of the German Language; the Second, the History of German Literature; the Third, German Composition and the Reading and Critical study of German Texts. The First and Second sections are taken up in alternate years; the Third annually. Students of the Third and Fourth years take lectures together. Language in German is taken up in the same Session as Literature in French, and *vice versa*. The texts prescribed in Course 8 are divided between the two years as may seem advisable. The German language alone is used in class instruction.

In order to obtain Honours, candidates must be capable of speaking German fluently.

Philology. 1902-1903 6. This course includes:—

(*a*) a general outline of the development of the German language from its origin to the present day, in the course of which the operation of the principal laws exemplified in the growth of the language will be traced.

(*b*) an introductory course in Old High German, regarded chiefly in its relation to the evolution of the German language.

(*c*) a special study of the Middle High German period; its language and literature, with selected texts. Philological relations between the Middle High German and the modern idiom will be pointed out.

The following books will be used:—Bachmann, Mittelhochdeutsches Lesebuch (Fäsi & Beer, Zürich); Behaghel, Deutsche Sprache; Wright, Middle High German Primer (Clarendon Press); Wright, Old High German Primer (Clarendon Press).

Three hours weekly.

History of Literature. 1901-1902.

7. Inasmuch as the Ordinary Course provides a comprehensive survey of German Literature, Honour Students will be required to make a special study of certain men, movements and periods, to write *résumés* in the German Language of Chapters of the larger Literary Histories dealing with limited periods, of Biographies, Articles in the Critical Reviews, Monographs, etc.

Goethe's Faust (more especially the First Part) will be interpreted, and lectures given on its inception and composition, as well as on the history of the Faust legend.

Three hours weekly.

Texts and Composition.

8. Texts and Composition.—Students are required to read the following texts, and make a critical study of their style and contents. It will be found necessary to begin the reading of these texts in the summer holidays which precede the Third Year's course.

Students are required to write German essays on literary and other subjects.

Klopstock, Messias, Cantos, I, II and III, Odes (Selections); Lessing, Emilia Galotti, Litteraturbriefe (Selections), Laokoon (Selections); Schiller, Kabale und Liebe, Die Braut von Messina; Goethe, Leiden des Jungen Werther, Dichtung und Wahrheit (Heath & Co.), Torquato Tasso; Wieland, Oberon (Selections); Herder, Volkslieder (Selections); Kleist, Kätchen von Heilbronn; Fouqué, Undine; Chamisso,

Peter Schlemihl; Heine, Prose (Clarendon Press); Grillparzer, König Ottokar's Glück and Ende. Freytag, Bilder aus der deutschen Vergangenheit (Selections); Heyse, L'Arrabbiata; Sudermann, Johannes; Hauptmann, Die Versunkene Glocke, Einsame Menschen; Maria von Ebner-Eschenbach, Das Gemeindekind; Anzengruber, Der Pfarrer von Kirchfeld.

Two hours weekly.

Semitic Languages.

PROFESSOR:—D. COUSSIRAT, B.A., B.D., D.D., OFFICIER DE L'INSTRUCTION PUBLIQUE.

The course comprises lectures on the above languages and their literature, their genius and peculiarities. Comparative philology, affinity of roots, etc., also receive due attention, while the portions selected for translation will be illustrated and explained by reference to Oriental manners, customs, history, etc.

Ordinary Second Year. 1. Hebrew grammar and translation. English rendered into Hebrew. Masoretic notes explained. The Hebrew text compared with the Septuagint and Vulgate Versions.

Four hours a week.

This course may also be taken as a course in either the Third or Fourth Years, by students who have not taken it in the Second Year.

Third Year 2. Hebrew Syntax. Translation of difficult passages of the Old Testament. Notes on the Massora and the Talmud (Mishna and Gemera).

Two hours a week.

Fourth Year. 3. Translation continued. Characteristics of the Semitic Languages, particularly of Aramaic, Syraic, Samaritan, Rabbinic, Arabic, Assyrian, Semitic Inscriptions.

Two hours a week.

Honours. Third and Fourth Years

4*a*. HEBREW.—Genesis. Isaiah, 40-66. Ecclesiastes. *Literature.*—F. Lenormant, The Beginnings of History.

HEBREW.—The course for the Second Year.

HEBREW.—The course for the Fourth Year.

4*b*. ARAMAIC.—Daniel. Ezra. Selections from the Targums. *Literature.*—Sayce, Lectures on the Origin and Growth of Religion.
Two hours a week.

5*a*. HEBREW.—Malachi, Psalms, 1-72; Job, 26-42. *Literature.*—Renan. A general History of the Semitic Languages.

5*b*. SYRIAC.—Selections from the Peshito, and from the Chronicles of Bar Hebræus. *Literature.*—W. Wright, Comparative Grammar of the Semitic Languages.
Two hours a week.

4*b* and 5*b* (*Literature excepted*) are the Additional Courses.

History

PROFESSOR:—CHARLES W. COLBY, M.A., PH.D.
LECTURER:—STEPHEN LEACOCK, B.A.

Ordinary First Year

1. The Main Epochs of European History.

Twenty-four lectures will be given on as many subjects, taken from Ancient, Mediæval and Modern History. The design of the course is less to present a mass of facts than to illustrate the chief features of racial, political and social progress. When the class first meets each student will receive a syllabus containing a list of topical readings. The sessional examination will be based mainly on these and on the following text-book:—"European History," by G. B. Adams (Macmillan). The results of the examination will be counted under the head of English. Students will be required to present short essays on historical subjects at regular intervals. A few illustrated lectures may also be given if suitable hours can be found.

Two hours a week during the second term.

Third or Fourth Year.

2. The Mediæval and Modern History of Europe, 378-1789.

This is a general course dealing with the historical development of European nations from the German Inroads to the beginning of the French Revolution. Special attention will be devoted to institutions and movements. Topics for investigation will be frequently assigned, and students will write at least one thesis during the year. Apart from topical readings, the following books are prescribed :—

Bryce, The Holy Roman Empire (Macmillan); Symonds, The Renaissance in Italy, abridged by Pearson (Holt); Seebohm, The Era of the Protestant Revolution (Longmans); Gardiner, The Thirty Years' War (Longmans); Hassall, The Balance of Power (Macmillan). Four hours a week.

3. The Renaissance. Three hours a week. (Omitted in 1901-1902).

4. The Reformation. Three hours a week. (Omitted in 1901-1902).

Honours. Third and Fourth Years.

5. The Seventeenth Century.

This course embraces almost the whole of the Seventeenth and the first years of the Eighteenth Century, ending at 1713 with the conclusion of the wars waged by Louis XIV. Its salient features are the disorganization of Germany and the central position of France in Europe from the age of Richelieu to the Peace of Utrecht. Among subordinate topics may be mentioned the status and relations of the principal religious parties on the eve of the Thirty Years' War, the decline of Spain, the diplomacy of Richelieu, the acme of Dutch power, the administration of Colbert, the social condition of France at the end of the Seventeenth Century, and the military operations which attended the War of the Spanish Succession. An attempt will be made to set forth the personal character of leading men, and to point the direction of the most striking intellectual tendencies which emerge during the period. One thesis will be required. Three hours a week.

6. Canadian History, 1608-1791. (Session 1902-1903.)
The aim of this course will be to describe the institutions of the Old Régime, and the establishment of British power in Canada. Its scope may be partly seen from the following list of topics: the nature of the French settlement, the social and political life of the colony (including seigniorial tenure), the ecclesiastical system, the relations of New France and New England, the Seven Years' War, the Quebec Act, the part of Canada in the War of the American Revolution, the Constitutional Act. Two hours a week.

7. Historical Seminary.
Under this head lectures will be given on such technical subjects as historical method, bibliography, chronology, and historical geography. One hour a week.

8. English Constitutional History,—1307. (This course may be omitted in Session 1902-1903.) **Honours. Third Year.**
The lectures of this course will follow the organic development of the English constitution from the earliest period to the death of Edward I. The later constitutional history of England will be among the subjects treated under Political Science. See p. 127. Two hours a week.

9. The Political and Constitutional History of Europe since 1789. **Fourth Year.**
In this course narrative history will be subordinated to a description of the leading types of government which have been established in Europe since the beginning of the French Revolution. The constitutional changes of France, Germany, Italy, Switzerland and Austria-Hungary will be rendered most prominent. Four hours a week.

Texts.—Honour students in History will be examined at the end of the Third Year on the following texts:—
Herodotus, VI-VIII, Macaulay's trans.; Thucydides, I, II, 1-65, VI, VII, Jowett's trans.; Plato, The Republic, Jowett's trans.; Plutarch, The Lives of Aristides, Themistocles, Pericles and Timoleon, Clough's trans.; Polybius, I, II, V, Shuck-

burgh's trans. ; Livy, XXI-XXII, Church and Brodribb's trans. ; Tacitus, Annals II, Germania, Vita Agricolae, Church and Brodribb's trans.

Honour students in History will be examined at the end of the Fourth Year on the following texts:—

Clarendon, History of the Rebellion, Book XI; Gibbon, Decline and Fall, chaps. XLIV, L, LI, LXVI; Burke, Reflections on the French Revolution; Macaulay, History of England, chap. III ; Bagehot, The English Constitution ; Stubbs, Select Charters, Introduction; Lord Acton, German Schools of History, English Historical Review, Vol. I; Matthew Arnold, Pagan and Mediaeval Religious Sentiment, in Essays in Criticism (First Series); Captain Mahan, The Influence of Sea Power on History; Langlois et Seignobos, Introduction aux Etudes Historiques, trans. G. G. Berry; Bryce, The American Commonwealth.

Summer Readings.—Students who intend to take History 2 are advised to read the books prescribed under that course, during the summer vacation.

In connection with History 5, Honour students of the Third and Fourth Years are advised to read the following books during the summer vacation:—

Wakeman, The Ascendancy of France (Macmillan); Kitchin, History of France, Vol. III ; Gindely, The Thirty Years' War (Bentley) ; Fletcher, Gustavus Adolphus (Unwin); Lodge, Richelieu (Macmillan); Perkins, Richelieu and Mazarin; Tuttle, History of Prussia, Vol. I.

Honour Courses.—Students of the Third Year who are candidates for Honours in History will take the following courses: History 2, 5, 7, 9; Political Science and Economics; and one other full course, or two half-courses, to be chosen from any division. Students of the Fourth Year who are candidates for Honours in History will take the following courses: History 5, 7, 9; Economics, see p. 126; and one other full course, or two half-courses, to be chosen from any division. A special thesis of advanced character will also be required.

Constitutional Law.

PROFESSOR:—DEAN WALTON (FACULTY OF LAW).

The Constitutional Law of Canada will be treated in the following order:—1. Canadian Constitutional History prior to Confederation. 2. The British North America Act, and the leading cases under it which illustrate the respective powers of the Dominion and the Provinces. 3. The fundamentals of English Constitutional Government which form the basis of the Canadian Constitution. 4. The Cabinet System. 5. The difference between English and French practice as to responsibility of officials.

Two hours a week.

Mental and Moral Philosophy.

PROFESSOR:—J. CLARK MURRAY, LL.D.
LECTURER:—
HILDA D. OAKELEY, M.A.

Second Year.

1. A. A course of lectures on Elementary Psychology. While discussing fully the phenomena of Sensation, as well as the primary processes of Attention, Association, and Comparison in connection with their bearing on mental developments in individuals and species, the lecturer also seeks to present to the student the chief fundamental problems, principles and methods involved in the study of more advanced philosophical subjects. In addition to Murray's Handbook of Psychology, the following authors should be consulted:—

James, Psychology (briefer course); Ladd, Psychology, Descriptive and Explanatory; Spencer, Psychology (selections); Wundt, Human and Animal Psychology.

1. B. A course of lectures in Formal Logic, as in such textbooks as Hyslop's Logic and Argument, or Lotze's Outlines of Logic, Part I. The lectures endeavour to show the application of logical processes to actual discussion, with special attention to common fallacies exemplified in literature and daily life.

Students are further required to read specified chapters from the following works:—

Sidgwick, Fallacies; Lafleur, Illustrations of Logic.

Three hours a week.

Third or Fourth Year

2. In the first term an advanced course on the Logic of Induction, including an examination of the fundamental concepts of theoretical science. Students are referred, in addition, to Mill's System of Logic, Book III, IV and VI, to Sigvart's Logic, Vol. II, Jevons' Principles of Science, Venn's Empirical Logic.

3. In the first term also a course on Moral Philosophy discussing the problems of Ethical Theory on the lines indicated in Murray's Introduction to Ethics, pp. 1-234.

4. In the first term also a course on the History of Philosophy.

5. In the second term an advanced course on the Psychology of Cognition, tracing the principal stages in the evolution of intelligence. The general problem, also, of the nature of knowledge is discussed, in view of the light which it throws on the ultimate nature of reality. Students are referred, among other works, to Murray, Handbook of Psychology, Book II, Part 1.

6. In the second term also a course on Applied Ethics, on the lines indicated in Murray's Introduction to Ethics, pp. 235-404.

N.B.—In all the classes of Mental and Moral Philosophy students are required to write essays on Philosophical subjects, or to perform exercises in Logic.

All these classes in the Third and Fourth Years meet four hours a week.

Honours

Candidates for Honours in Philosophy are in general required to take all the Ordinary Courses in Logic and Metaphysics, in Moral Philosophy, in Political Science and Economics, as well as the following Honour Courses:—

Third Year.

7. This course is devoted mainly to the history of Greek Philosophy. It begins with the colonial period, during which

philosophical activity was most energetic among the colonies of the Greeks in Asia Minor and Italy. It then passes on to the Athenian period, beginning about the middle of the fifth century, B.C., when Philosophy found a home in the greatest centre of intellectual life in the ancient world. A third period is then described, during which Philosophy extends its culture over ancient life by the spread of the great schools, especially the Stoical and the Epicurean, which arose towards the end of the fourth century, B.C. Finally, some account is given of the movement, of which Alexandria was the centre, and by which Greek Philosophy was brought into contact with Oriental thought. The history is carried down to the closing of the Pagan Schools in Athens by the Emperor Justinian. Occasional lectures are also given on the other special studies of the Third Year Honour Course. Students are expected to make an independent study of the fragments of one of the early philosophers, and to write an essay embodying the results of their study.

The subjects of examination will be, in addition to the lectures, the following:—

Plato's Theætetus; Locke's Essay concerning Human Understanding, Books II and IV; Fraser's Selections from Berkeley; Hume's Inquiry concerning Human Understanding (Selby-Bigge's edition); James' Principles of Psychology, Chapters 10 to 16, inclusive; Seth's Scottish Philosophers; Lotze's Logic; Hobhouse's Theory of Knowledge.

Fourth Year.

8. The lectures of this Year form two courses. One is devoted to the earlier period of Modern Philosophy. After sketching the transition from Mediæval to Modern thought, the course gives some account of the Empirical movement started in England by Bacon and Hobbes, and developed by Locke and his school. The Idealistic tendency of speculation during this period is sketched mainly in three movements:—that which began in England with the Cambridge Platonists, and culminated in Berkeley; the German movement originated by Leibnitz, and formulated by Wolf; the

Cartesian movement, which culminated in Spinoza. The course closes with a lengthy exposition of Kant's three Critiques.

9. The other course is on the History of English Philosophy from Hartley to Herbert Spencer. The lectures discuss the chief characteristics of English thought during the last one hundred and fifty years, more particularly as shewn in the works of English psychologists and political writers during that time. The writers to whom special attention is given are: in Psychology—Priestley, Hartley, Erasmus Darwin, the two Mills, Bain, and Herbert Spencer; in Political and Social Science—Burke, Paine, Godwin, Paley, Bentham, Malthus. References are also made to minor writers, whose work may be deemed to be of sufficient importance in the general movement and development of philosophy. No textbook is specially recommended; but the student is expected to read appointed selections from the writers under discussion, as well as to consult Leslie Stephen's History of English Thought in the Eighteenth Century, and a few chapters in Lewes' History of Philosophy.

The principal points emphasized in the lectures are the empirical character of the English school in psychology and metaphysics, and the practical, utilitarian view of English political writers.

The subjects of examination, in addition to the lectures, will be:—Aristotle's Nicomachean Ethics; Spinoza's Ethics; Watson's Selections from Kant; Schopenhauer's Freedom of the Will and Principle of Sufficient Reason; Spencer's First Principles; Green's Prolegomena to Ethics, Part II.; James' Principles of Psychology, Vol. II.; Watson's Outline of Philosophy.

Students are also expected to write an Essay on Leibnitz's critique of Locke in the Nouveaux Essais.

The Honour lectures are in general four a week in each year.

Mathematical and Physical Sciences.

PROFESSORS:—A. JOHNSON, M.A., LL.D. (MATHEMATICS AND ASTRONOMY).
JOHN COX, M.A., (PHYSICS).
E. RUTHERFORD, M.A., (PHYSICS).
LECTURERS:—REV. H. M. TORY, M.A., (MATHEMATICS).
HOWARD T. BARNES, D.Sc., (PHYSICS).
DEMONSTRATORS IN PHYSICS:—R. K. MCCLUNG, B.A., G. R. DUNCAN, B. Sc.

Ordinary First Year.

1. MATHEMATICS—Arithmetic.—Euclid, Books 1, 2, 3, 4, 6 (omitting propositions 27, 28, 29), with definitions of Book 5, Todhunter's edition, or Hall and Stevens: the latter is recommended to students in advanced sections especially.—Colenso's Algebra (Part I) to end of Quadratic Equations, or Hall and Knight's Elementary Algebra.—Hall and Knight's or Locke's Elementary Trigonometry. Nature and use of Logarithms.
Four hours a week.

Ordinary. First Year.

2. PHYSICS.—This course has two objects: (1) to give the minimum acquaintance with Physical Science requisite for a liberal education to those whose studies will be mainly literary; (2) to be introductory to the courses in Chemistry and other branches of Natural Science, and to the more detailed courses in Physics in the Third and Fourth Years. Only the most important principles in each branch of the subject will be treated, as far as possible with reference to their historical development and mutual relations; and they will receive concrete illustration in the study of the principal instruments in daily use in the laboratory. Two illustrated lectures will be given per week. During the session each student will be required to attend in the laboratory eight times, and make measurements involving the use of the following instruments:—*Balance, Pendulum, Barometer, Thermometer, Sonometer, Telescope or Microscope, Tangent Galvanometer, Wheatstone's Bridge.*

Outline of Syllabus. The scope and method of Science, Primary Phenomena ("States and Properties of Matter"), Motion, Velocity, Acceleration, Laws of Motion, Momentum, Energy, Work. The Parallelogram Law for Velocities and Forces, Equilibrium and the Simple Machines. Uniform circular motion, Vibration, the Pendulum, Fluid Pressure, the Barometer, Specific Gravity. Summary of *Mechanics*, indicating the principle of the Conservation of Energy.

The missing Energy traced in (1) *Sound*. Nature of wave Motion. Intensity, Pitch and Quality of Musical Notes. The stretched String and Organ Pipe. Resonance.

(2) *Heat*. Temperature and the Thermometer. The Calorimeter, Fusion and Vaporisation. Laws of Boyle and Gay-Lussac. The Mechanical Equivalent. Application of Conduction, Convection and Radiation to common problems of Climate, Ventilation, etc.

(3) *Light*. Reflection, Refraction, the Spherical Mirror, Prism, Lens, Miscroscope, Telescope, Spectroscope, Polariscope. Principle of Interference and sketch of the Undulatory Theory.

(4) *Electricity and Magnetism*. The Electrophorus, the Modern Induction Machine, the Condenser. Coulomb's Law of Force. The idea of Potential. The Quadrant Electrometer. Atmospheric Electricity. Magnetic Pole, Moment, Field and Law of Force. The Compass and Terrestrial Magnetism. Effects of Current. The Voltameter and Storage Cell. The Galvanometer. Heating Effects. Simple Batteries. Ohm's Law. Units and Measurement of Current Resistance, Electromotive Force. Mutual Mechanical Effects of Conductors and Magnetic Fields. Principle of the Electric Motor. The Electro-magnet. Induction of Currents, and Principle of the Dynamo. Applications to Telegraph, Telephone, Lighting, and supply of Power.

Conclusion.—Restatement of Principle of Conservation of Energy in complete form. Dissipation of Energy.

Two hours a week.

3. A. Mathematics.—Algebra.—The Three Progressions ; Ratio, Proportion and Variation; Permutations and Combinations; Scales of Notation; Logarithms; Interest and Annuities; Elements of Determinants; Geometrical Conic Sections—Solid Geometry (Euclid, Bk. XI and first two props of Bk. XII, or equivalent): —Spherical Trigonometry (Solution of Spherical Triangles with proofs of the necessary preliminary propositions and formulae). **Second Year.**

Text-books:—Hall and Knight's Higher Algebra; Wilson's Solid Geometry and Conic Sections.
Two hours a week

3. B. Dynamics.—This course is chiefly experimental, and deals with :—Range and Time of Flight of Projectiles; Morin's Machine; Laws of direct Impact of Elastic Bodies ; Simple Harmonic Motion; Simple and Compound Pendulum ; Determination of Gravity ; Moments of Inertia, and their Experimental Determination; Moment of Momentum, and Energy of a Rotating Body.
One hour a week.

4. Mathematics.—Elementary parts of the Differential and Integral Calculus; Elementary Analytical Geometry. **Third or Fourth Year.**
Four hours a week.

Astronomy and Optics.—Two hours a week. Half course. **Third or Fourth Year.**

5. A. Astronomy.—Galbraith and Haughton's Astronomy or Brinkley by Stubbs and Brunnow. Lockyer's Elementary Astronomy (English edition), and Gall's "Easy Guide to the Constellations" are recommended as introductory.—The subject is taken with Optics as a half course. The lectures will be given before Christmas. First term; two hours a week.

5. B. Optics.—Two hours a week, from January to end of Session. *Text-book*:—Galbraith and Haughton.

Third Year. 6. A. Mechanics and Hydrostatics.—*Text-book*, Loney, Mechanics. Half course.

6. B. Optics as above.

Experimental Physics.—(*First Course.*)—Laws of Energy, Sound, Light and Heat. *Text-book*:—Ganot or Jones.

Lectures fully illustrated; two hours a week, with Laboratory Course, three hours a week.

Laboratory Manual—Pitcher and Tory.

Third Year. 7. A. Sound.—Velocity of Sound; Determination of Rates of vibration of Tuning Forks; Resonance; Laws of vibration of strings.

7. B. Light.—Photometry; Laws of Reflection and Refraction; Indices of Refraction; Focal Lengths and Magnifying Powers of Mirrors, Lenses, Telescopes and Microscopes; the Sextant, Spectroscope, Spectrometer, Diffraction Grating, Optical Bench and Polariscopes.

7. C. Heat.—Construction and Calibration of Thermometers; Melting and Boiling Points; Air Thermometer; Expansion of solids, liquids and gases; Calorimetry; Specific and Latent Heats; Laws of Vapour Pressure; Radiation; the Mechanical Equivalent of Heat.

Fourth Year. 8. Experimental Physics.—(*Second Course.*)—Electricity and Magnetism. *Text-book*:—Ganot or S. P. Thompson.

Lectures fully illustrated; two hours a week, with Laboratory Course, three hours a week.

Laboratory Manual—Pitcher and Tory.

Fourth Year. Magnetism.—Measurement of Pole Strength and Moment of a Magnet; the Magnetic Field; Methods of Deflection and Oscillations; Comparison of moments and determination of elements of Earth's magnetism. Frictional Electricity. Current Electricity.—Com-

plete course of measurements of Current Strength, Resistance and Electromotive Force; Calibration of Galvanometers ; the Electrometer ; Comparison of Galvanometers; the Electroceter; Comparison of Condensers; Electromagnetic Induction.

N.B.—For advanced Courses intended for Electrical Engineering Students and Graduates pursuing the study of Physics, see Calendar, Faculty of Applied Science.

(a) Mathematics.

Advanced Sections. First Year.

9. MATHEMATICS.—Hall and Stevens, Euclid; Casey, Sequel to Euclid; Hall and Knight, Advanced Algebra; Todhunter or Burnside and Panton, Theory of Equations (selected course). Two or three hours each week.

Second Year.

10. MATHEMATICS.—Lock, Higher Trigonometry, with McClelland and Preston, Spherical Trigonometry, Part I; Salmon, Conic Sections, chapters 1, 2, 3, 5, 6, 7, and 10 to 13 inclusive; Williamson, Differential and Integral Calculus (selected course).
Three hours a week.

(b) Mathematics and Natural Philosophy.

Honour Courses. Third and Fourth Years.

11. MATHEMATICS.—Williamson, Differential and Integral Calculus; and Boole or Forsyth, Differential Equations, or Salmon, Geometry of Three Dimensions (alternate years).
ASTRONOMY.—Godfray.
Two hours a week.

Third Year.

12. MATHEMATICAL PHYSICS.—Minchin, Statics, Vol. I (selected chapters); Williamson and Tarleton, Dynamics, Chaps. 1 to 8, inclusive; Besant, Vol. I, Hydro-Mechanics, Part I, chaps. 1, 2, 3, 7 ; Parkinson, Optics.
Two hours a week.
EXPERIMENTAL PHYSICS.—Course 7.

Fourth Year. 13. Physical Astronomy.—Godfray, Lunar Theory; or Cheyne, Planetary Theory; Newton, Principia, Lib. I, secs. 9 and 11, with the necessary preliminary propositions.

Fourth Year. 14. Mathematical Physics.—Minchin, Statics, Vol. II., selected chapters; Williamson and Tarleton, Dynamics; Routh, Dynamics of a Rigid Body (for reference); Besant, Hydro-Mechanics; Preston, Theory of Light; Cumming, Theory of Electricity.

Experimental Physics.—Course 8.

A special course for Graduates and Advanced Students will be delivered during the Session 1901-2, by Professor Cox, at hours to be arranged. Subject—The Relations between Optics and Electricity.

(c) Experimental Physics.

Honour Courses. Third Year. 15. Courses 7, 8, (10 hours a week). Elements of the Calculus; Simple Differential Equations; Elements of Analytical Geometry, Elementary Dynamics of a Particle; Elementary Rigid Dynamics.

Fourth Year. 16. Advanced Courses in Heat, Optics and Electrcity. A short course in Physical Chemistry.

Chemistry.

Professors:—B. J. Harrington, M.A., Ph.D., LL.D.
J. Wallace Walker, M.A., Ph.D.
Assistant Professor:—Nevil Norton Evans, M.A.S.
Demonstrators:—James Henderson, B.Sc., Ph.D.
F. Soddy, B.A.
A. Douglas McIntosh, M.A.
Charles D. Lindsay, B.Sc.
Lecture-Assistants:—Edgar Browning, M.A., M.D.
Louis C. Graton, B.Sc.

Second Year. 1. General Chemistry.—A Course of lectures on Elementary Chemical Theory, and on the principal elements and their compounds. The lectures are fully illustrated by means of experiments.

Text-book:—Newth's Text-book of Inorganic Chemistry.

Three hours a week.



Macdonald Chemistry Building.—A Research Laboratory.



Macdonald Mining Building.—The Assay Room.

ELEMENTARY PRACTICAL CHEMISTRY.—This course is compulsory for all undergraduates taking the above course of lectures. The work includes experiments illustrative of the Laws of Chemical Combination, the Preparation of Pure Chemical Compounds, and elementary Qualitative Analysis.
Six hours a week.

Third Year.

2. INORGANIC CHEMISTRY.—An elementary course on special departments of Inorganic Chemistry.
Two hours a week during the first term.

3. ELEMENTARY ORGANIC CHEMISTRY.—An elementary course of lectures on Organic Chemistry open to Biological Students and compulsory for students intending to take the advanced course—Organic Chemistry in the Fourth Year.
Two hours a week during the second term.

4. ADVANCED PRACTICAL CHEMISTRY.—Laboratory practice in methods of gravimetric, volumetric and electrolytic Quantitative Analysis, during the first term, and preparation of simple organic substances in the second term.

Note.—Extra reading and laboratory work will be required from Honours Students.

The Organic Laboratory will be open during the Second Term for Biological Students who desire to obtain an elementary knowledge of the methods employed in preparing organic substances.

Fourth Year.

5. ORGANIC CHEMISTRY.—A systematic course of lectures on Organic Chemistry, including the Analysis of Organic Substances, Calculation of Formulae, Determination of Molecular Weights, Polymerism, Isomerism, etc., followed by a discussion of the more important derivatives of the Fatty and Aromatic Series of Compounds. Students intending to enter the Medical Faculty would find this course of great advantage.
Two hours a week.

6. Practical Organic Chemistry.—A complete course on the preparation and analysis of Organic Substances, with determinations of Molecular Weights, etc.

7. Physical Chemistry.—The lectures on Physical Chemistry are divided into two parts. In the first term they include a study of such physical properties of gases, liquids, and solids as are known to depend upon their Chemical Constitution, Thermo-Chemistry and the Law of Mass Action. The second term is devoted to Electro-chemistry. The lectures will be based upon the application of the gaseous laws to solutions.

8. Practical Physical Chemistry.—Laboratory work will include the various methods of determining the Molecular Weights of gases and of substances in solution, accurate measurements of densities, refractive indices, surface tensions and specific rotations; also examples of chemical statics and kinetics, and electro-chemical measurements.

9. Mineral Analysis.—A course of laboratory work comprising advanced quantitative analysis and investigation of the constitution of mineral species.

Honour Courses. Third Year.

(1) Chemistry, 2, 3, 4; (2) Experimental Physics; (Course 7); (3) Mechanics (Course 4); (4) Differential and Integral Calculus (4 hours a week for the first half of second term or 2 hours a week for whole term), with Biology, or Geology, or Mineralogy.

(1) Chemistry, 5, 6, 7, 8; or 7, 8, 9; (2) Experimental Physics (Course 8).

Mineralogy.

Professor:—B. J. Harrington, M.A., Ph.D.
Demonstrator:—

Honours. Third Year.

1. Mineralogy.—Lectures and demonstrations illustrated by models and specimens in the Peter Redpath Museum and the Macdonald Chemistry and Mining Building. Among the subjects discussed are: Crystallography;

physical properties of minerals dependent upon light, electricity, state of aggregation, etc.; chemical composition, calculation of mineral farmulæ, quantivalent ratios, etc.; principles of classification, description of species.

Two hours a week.

Fourth Year.

2. Mineralogy (In continuation of No. 1)..—Description of species, particular attention being paid to those which are important as rock constituents and to the economic minerals of Canada.

First term, two hours a week.

Third Year

3. Determinative Mineralogy.—Laboratory practice in blowpipe analysis and its application to the determination of mineral species. This work is carried on in the new laboratory provided for the purpose in the Chemistry and Mining Building.

Thursday, 2 to 5 p.m.

Elementary Biology.

Professors:—D. P. Penhallow, M.Sc.
E. W. MacBride, M.A., D.Sc.

Second Year. Elementary Biology.

1. This course is designed for those who may wish an introduction to the principles of general biology, but who cannot carry such work beyond the limits of an elementary course; for students in Arts proceeding to Medicine, and also for those who may wish to take the more advanced work of the Third and Fourth Years to which it will be introductory.

A. Zoology.—First half session. This course will comprise the study of a selected number of types, leading up to and including the rudiments of vertebrate anatomy and forming an introduction to the more systematic work of the Third and Fourth Years. The types selected are Amœba, Paramœcium, Hydra, Lumbricus, Scyllium, and Rana.

B. Botany.—Second half-session. A course in the general morphology of plants embracing a discussion of the general principles of morphology and classification, respiration,

photosynthesis, nutrition, reproduction, symbiosis and adaptations, as also the relations of plants in geological time. These studies will be illustrated by means of special types taken from the principal groups, and emphasis will be given to a study of the flowering plants, including herbarium work, determination of species and geographical distribution.

This course is designed with special reference to those who may not be able to carry such work beyond the limits of an elementary course, while it will form the basis for more specialized work in the Third and Fourth Years.

Two lectures and two laboratory periods each week.

Botany.

PROFESSOR:—D. P. PENHALLOW, M.Sc.
LECTURER:—C. M. DERICK, M.A.

Second Year. 1. Plant Biology. (See page 119). This course is introductory to the more specialized work of the Third and Fourth Years, and will be represented by a number of types, including the flowering plants and a determination of species.

Two lectures and two laboratory periods each week.

Ordinary Third Year. 2. Special Morphology. This course is designed to give a comprehensive knowledge of plant structures and relationships. The principles of development will be illustrated by type studies which may also serve as the basis of more special work in Bacteriology, Physiology, Ecology, or Paleobotany. It comprises :—

(*a*) Microscopy, including determination of amplifications, micrometry, drawings, section cutting, the preparation of microscopic objects.

This work presupposes familiarity with the optics of the microscope as given in Physics (3) of the Second Year.

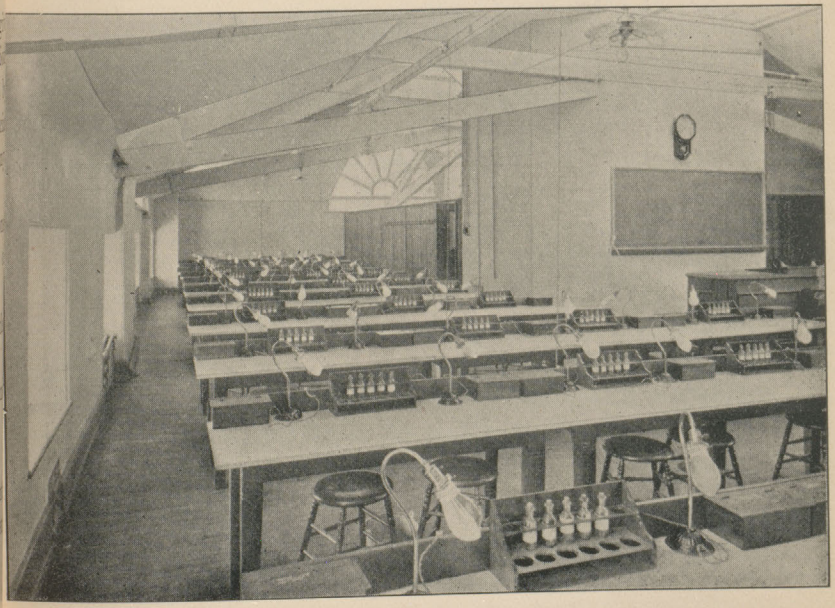
(*b*) Critical studies of the Thallophyta, Bryophyta and Pteridophyta as illustrated by selected types.

Two lectures and two laboratory periods each week.

Ordinary Fourth Year. 3. This course embraces a critical study of the seed plants in continuation of the work of the Third Year, and is open



In the Botanical Laboratories.



In the Zoological Laboratories.

to undergraduate students only after having satisfactorily completed the latter. Partial students may take this course provided they show suitable qualifications.

The work will be based upon selected types of seed plants, and will embrace a study of the anatomy, cell products and embryology—with special reference to adaptations and relationships—and exercises in practical morphology, field and herbarium work.

Two lectures and two laboratory periods each week.

HONOUR COURSE IN BIOLOGY.

Honours. Third Year.

4. Candidates for Honours in the Third Year will, in addition to the ordinary work of that year, take a special course of reading under the direction of the professor, who will hold a colloquium once each week for the purpose of giving advice and directions in such work.

For 1901-1902, the special readings will include:—Pfeffer's Physiology of Plants, Vol. I; Campbell, Evolution of Plants, together with such special monographs as may be selected.

Fourth Year.

5. Candidates for honours in the Fourth Year will follow a course in experimental plant physiology based upon Pfeffer's Plant Physiology, Vols. 1 and 2, and McDougall's Experimental Plant Physiology. A colloquium will be arranged for advice and direction.

Laboratory six hours per week.

Zoology.

PROFESSOR:—ERNEST WILLIAM MACBRIDE, M.A., D.Sc.
LECTURER:—J. STAFFORD, B.Sc.

Ordinary Second Year.

1. Animal Biology. (See Biology, p. 119.) This course includes a careful study of certain selected types leading up to and including a knowledge of the outlines of vertebrate structure. It forms part of the course on General Biology.

Two lectures and two demonstrations a week during the autumn term.

Ordinary Third Year

2. Elementary Zoology. This course consists of a general survey of all the principal types of structure met with in the animal kingdom. Special attention will be paid to those groups of animals which include numerous fossil representatives, so that the student is prepared for an intelligent study of Palæontology. During the winter term (New Year till Easter) a number of vertebrate types will be dissected, and the outlines of vertebrate osteology studied.

Two lectures and two demonstrations a week throughout the session.

Except under special circumstance this course is only open to students who have already taken (1).

Text-book recommended for (1) and (2):—Shipley & MacBride, Manual of Zoology.

Honour Course in Biology.

[For the Botanical portion of this course, see p. 121.]

Honours Third Year.

3. During the Third Year students pursuing the Honours Course in Biology will take the ordinary work, and will in addition pursue a course of reading under the direction of the Professor. The Professor will once a week hold a Colloquium in order to supervise the studies of honours students.

The books to be studied during the session 1901-1902 will be as follows:—Darwin, Origin of Species; Verwom, General Physiology (English translation).

Honours. Fourth Year.

4. A Special Honours course will be given during the Fourth Year.

This will include:—

(*a*) A study of those groups of invertebrates not dealt with in (3), especially of those which are of interest on account of their relation to disease.

(*b*) A study of the larval forms and main outlines of development of the principal groups of vertebrata.

(*c*) A systematic study of Vertebrate Osteology with special reference to the types exhibited both in the Zoological and the Geological sections of the Redpath Museum.

(*d*) A study of the outlines of vertebrate embryology.

In addition the following course of extra reading will be required, viz.: Wallace, Island Life; Woodward, Vertebrate Palæontology.

A short weekly essay on some selected point will also be required.

Two lectures and two demonstrations a week throughout the term. 4 (*d*) will commence about March 1. Only a knowledge of Animal Biology will be assumed for it, and hence it can be taken as a partial course by students who have attended either (3) or (4).

N.B.—No student is permitted to attend the lectures without taking the practical work. Under the regulations of the new curriculum the special fee for the use of the laboratory is abolished, but the sum of $2.50 is exacted from each student to cover the cost of the class-book and other necessaries, which are supplied to him and become his property. This sum need only be paid once; if the student attends a second course in the department, it is not required.

Geology.

PROFESSOR:—FRANK D. ADAMS, M.A.Sc., PH.D.
DEMONSTRATOR:—OSMOND E. LEROY, B.A.

Ordinary Third Year

1. General Geology.—The lectures will embrace a general survey of the whole field of Geology, and will be introduced by a short course on Mineralogy. Especial attention will be devoted to Dynamical Geology and to Historical Geology including a description of the fauna and flora of the earth during the successive periods of its past history.

   The lectures will be illustrated by the extensive collections in the Peter Redpath Museum, as well as by models, maps, sections and lantern views. There will be an excursion every Saturday until the snow falls, after which the excursion will be replaced by a demonstration in the Museum.

Text-book:—An Introduction to Geology.

Books of Reference:—Dawson, Hand-Book of Geology; Dana, Manual of Geology.

Three hours a week throughout the year, with additional excursions and demonstrations as above stated.

Honours Course in Geology and Mineralogy.

[For Mineralogical portion of this course see p. 118.]

In the Third Year, students pursuing the Honours Course will take the Ordinary work (General Geology, 1).

In the Fourth Year they will take following courses (2, 3, 4, 5 and 6).

Honours. Fourth Year.

2. Petrography.—The modern methods of study employed in Petrography are first described, and the classification and description of rocks is then taken up.

One lecture a week during the first term. One afternoon a week throughout the year will be devoted to special microscopical work in the Petrographical Laboratory.

Text-book:—Harker, Petrology for Students.

Books of Reference:—Rosenbusch, Mikroskopische Physiographie, and Rutley, Rock-forming Minerals.

3. A. Palæontology.—An extension of the Palæontology of Course 1, with special studies of some of the more important groups of fossils.

One lecture a week during the second term and one demonstration a week, with special studies in the Peter Redpath Museum.

Books of Reference:—Nicholson and Lydekker, Manual of Palæontology; Zittel, Text-Book of Palæontology.

or,

3. B. Physiography.—A description of Land Forms with reference to classification, drainage development and climatic control.

Special attention will be paid to the influence of Geographical factors in the history of man. The physical features will be taken up during the latter half of the course.

One lecture and one demonstration a week during the second term.

In the session of 1901-2, course 3 B., but not 3 A., will be given.

4. Practical Geology and Ore Deposits.—A description of the methods employed in carrying out Geological Surveys, and in preparing Geological Sections. Special studies in folding, faulting, etc., concluding with a general treatment of the nature and mode of occurrence of Ore Deposits.

One lecture or demonstration a week throughout the year.

Text-books:—Geikie, Outlines of Field Geology; Kemp, Ore Deposits of the United States. Phillips and Louis, A Treatise on Ore Deposits.

5. Canadian Geology.—A general description of the Geology and Mineral Resources of the Dominion.

One lecture a week during the second term.

Text-book:—Dawson, Hand-book of Geology.

Books of Reference:—The Reports of the Geological Survey of Canada.

6. Geological Colloquium.—A discussion each week of some Geological topic, references to the literature of which have been given by the Professor in the week preceding. The course is intended to give students some acquaintance with Geological literature, as well as a wider knowledge of the great principles which underlie the Science.

One hour a week in second term.

N.B.—A large amount of additional private reading will also be required of Candidates for Honours.

Students taking any of these courses are entitled to tickets of admission to the Museum of the Natural History Society of Montreal.

Course for B.A. Honours in Geology and Mineralogy.

Third Year.—Geology (ordinary of Third Year).
Mineralogy.
Zoology (ordinary of Third Year).
Chemistry (of Second or Third Year).

Fourth Year.—Geology (Advanced)—(Lectures, Lab. work, Colloquium, Reading.)
Mineralogy (Advanced).
Botany (ordinary of Second Year).
Surveying.

Economics and Political Science.

PROFESSOR :—

LECTURER :—STEPHEN LEACOCK, B.A.

During the session 1901-2 at least one full course will be given in the above department, counting as an option in the Third or Fourth Year of the undergraduate curriculum for the degree of B.A. The course will be open also to Partial Students and others.

Details of the teaching programme will not be announced till later, when the appointment of a new Professor may call for some modifications of what is stated below. Meanwhile, the following syllabus will suffice to indicate the scope and character of the teaching offered :—

Third or Fourth Year.

1. ECONOMICS.—Scope and method of Economic Science; history of economic theory; public and private wealth; consumption, production and distribution of wealth; theory of value; theory of rent; interest and profits; wages, money and credit; combinations of employers and of labourers; speculation; transportation; commercial development and generally the industrial organization of society.

Text-books and Books of Reference :—Hadley's Economics and Ingram's History of Political Economy; Bullock's In-

troduction to Political Economy; Gide's Principles of Political Economy; Marshall's Principles of Economics; Macleod's Elements of Economics; Macfarlane's Value, Price and Distribution; Cohn's History of Political Economy.

2. Political Science.—The introductory part of the course will deal with the general principles of political science, its province and its problems. In this connection an examination will be made of the nature of the State and the different theories of its purpose and origin. The various forms of government will be discussed, together with the composition of legislative bodies and the relation between legislature and executive.

The main work of the year will comprise a study of comparative national government. The constitutions, governments and political parties of Great Britain and the United States will be treated in detail. The governmental systems of continental Europe will also be examined. The special features presented by each country will be made the basis of appropriate studies in political science. Some time will be devoted to the study of local and colonial government.

Text-Book:—The State (Woodrow Wilson).

For further reference:—Sidgwick, Elements of Politics; Burgess, Political Science and Constitutional Law; Anson, Law and Custom of the Constitution; Bryce, American Commonwealth; Bodley, France; Lovell, Governments and Parties in Continental Europe.

Roman Law.

Lecturer:—Professor F. P. Walton, B.A., LL.B.

1. A Course is offered in Roman Law, open to Third and Fourth Year students in Arts, and qualifying as an option for the B.A. degree. For details, see p. 229.

Art (History of) and Archæology.

Lecturer:—Professor S. Henbest Capper, M.A.

The course comprises two sessions' work, a half-course (of fifty lectures) being given each session. The lectures, which are illustrated by photographs and casts, lantern-slides and

diagrams, are delivered in the Architecture Class-room, Engineering Building, on Monday and Thursday, at 4 p.m.

The fee for the full course (see page 73) is $25.00; for each half-course, if taken separately, $14.00 (including Grounds and Athletics).

For Session 1900-1901 the subjects overtaken were principally the historical and critical survey of the arts of the ancient world (Egypt, Assyria, Greece and Rome), chiefly architecture and sculpture, with special reference throughout to materials and technical processes and the limitations these impose.

In Session 1901-1902 part of the course will be devoted to certain subjects of Classical Archæology ; an introductory study of Greek Vases and Greek Coins, with lectures in amplification of the preceding session's topographical and archæological notes on existing Greek and Roman remains. The historical survey of Art will be continued for the Middle Ages in a study of Gothic architecture and the accessory arts; for the Renaissance and Modern times in the study of the revival of classical architecture and sculpture and the rise of the Italian and subsequent schools of painting. At the conclusion of the course some lectures will be devoted to a discussion of the origin of art and the sources of artistic expression.

In addition to the class lectures, candidates are expected to show a knowledge of the text-books prescribed and of portions of the books of reference, as indicated in connection with the lectures. A certain number of class essays are prescribed during the session.

Text-books:—Baldwin Brown, "The Fine Arts" (Murray; Scribner); Hamlin, "History of Architecture" (Longmans); any good manual of the history of Painting, such as Poynter's (Sampson Low) or Van Dyke's (Longmans).

Meteorology.

SUPERINTENDENT OF OBSERVATORY—C. H. McLEOD, MA.E.

Instruction in Meteorological Observations will be given in the Observatory at hours to suit the convenience of the senior students.

Certificates will be granted to those students who pass a satisfactory examination on the construction and use of meteorological instruments and on the general facts of Meteorology.

Pedagogy.

LECTURER:—PRINCIPAL S. P. ROBINS, M.A., LL.D.

Lectures on this subject will be given in the Normal School to undergraduates of the Third and Fourth Years, who wish to obtain the Provincial Academy Diploma.

Lecture hours, Tuesdays and Fridays, 2 to 3.

Physical Culture.

MEDICAL EXAMINER AND INSTRUCTOR:—R. TAIT MCKENZIE, B.A., M.D.

The classes will meet at the University Gymnasium at hours to be announced at the commencement of the Session. The Wicksteed Silver and Bronze Medals (the gift of Dr. R. J. Wicksteed) are offered for competition to students of the Graduating Class and to students who have had instruction in the Gymnasium for two sessions,—the silver medal to the former, the bronze medal to the latter. (See p. 43.)

VIII. Laboratories.

The Macdonald Physical Laboratories.

The equipment of the Macdonald Physical Building Laboratories comprises: (1) apparatus for illustrating lectures; (2) simple forms of the principal instruments for use by the Students in practical work; (3) the most recent types of all important instruments for exact measurement, to be used in connection with special work and research.

The basement contains the cellars, furnaces, and janitor's department at the west end of the building. The machine room—containing a small gas engine and dynamo, which are fitted for testing, but can also be used for light and power, a motor-alternator and a motor-dynamo—is situated at the extreme western corner of the basement so as to be as far removed as possible from the delicate magnetic and electrical instruments. Here is also the switch board for controlling the various circuits for supplying direct or alternating current to different parts of the building. The Accumulator

Room contains a few large storage cells, charged by the motor-dynamo, which are fitted with a suitable series-parallel arrangement and with rheostats for obtaining and controlling large currents up to 4,000 amperes for testing ammeters and low resistances, etc.

The Magnetic Laboratory contains magnetic instruments and variometers of different patterns, and also a duplicate of the B. A. Electro-dynamometer, which has been completely remodelled and set up with great care for absolute measurements of current. The Laboratory, on the opposite side of the basement, contains a very fine Lorenz apparatus for the absolute measurement of resistance, constructed under the supervision of Prof. Viriamu Jones. It also contains a set of Ewing Seismographs and a pair of Darwin Recording Mirrors for measuring small movements of the soil.

There is a Constant Temperature Room, surrounded by double walls, which contains a Standard Rieffler Clock, and is fitted for comparator work.

The ground floor contains at the western corner a small machine shop, fitted with a milling machine and suitable lathes and tools, driven by electric motors, and such appliances as are required for the making and repairing of the instruments, for which the services of a mechanical assistant are retained. There is also a store room for glass, chemicals and cleaning materials, and extensive lockers and lavatories for the use of the students.

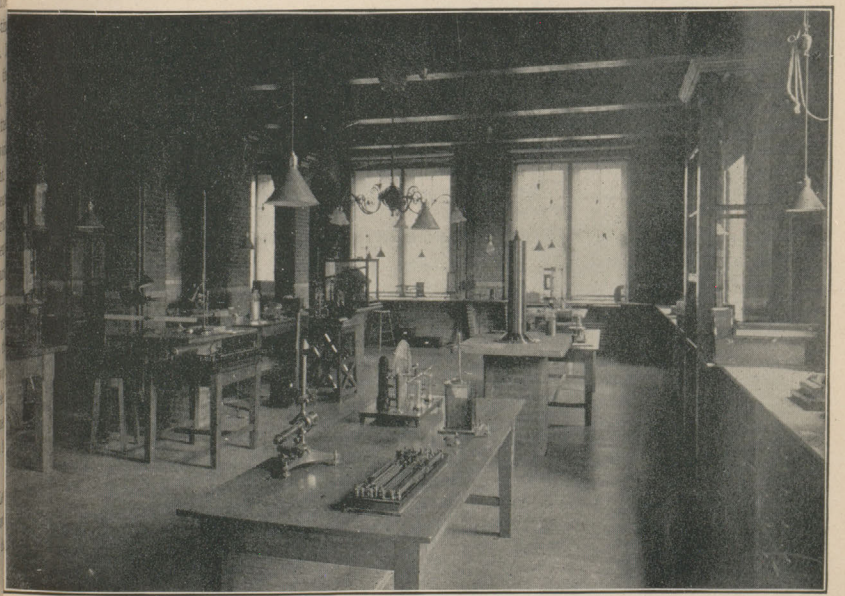
The Main Electrical Laboratory is a room 60 feet by 40, and is fitted with a number of brick piers, which come up through the floor, and rest on independent foundations, in addition to the usual slate shelves round the walls. This room contains a large number of electrometers, galvanometers, potentiometers and other testing instruments of various patterns, and adapted for different uses. It connects with a smaller room at the side, in which are kept the resistance boxes and standards, and also the capacity standards. A small research laboratory, adjoining the electrical laboratory, is fitted up for the study of electrical discharge in high vacua, and for work with Röntgen and uranium radiation, and with ultra-violet light.

The First Floor contains the Main Lecture Theatre, with seats for about 250 students. The lecture table is supported on separate piers, which are independent of the floor. Complete arrangements are provided for optical projections and illustration. The Preparation Room in the rear contains many of the larger pieces of lecture apparatus, but the majority of the instruments, when not in use, are kept in suitable cases in the adjoining apparatus room. On the same floor there is the Heat Laboratory, devoted to advanced work in Thermometry, Pyrometry and Calorimetry, and also to such electrical work as involves the use of thermostats and the measurement of the effects of temperature. There are also two smaller rooms for Professors and Demonstrators.

The Second Floor is partly occupied by the upper half of the Lecture Theatre. There is also an Examination Room for paper work, a Mathematical Lecture Room, with a special apparatus room de-



Macdonald Physics Building.—Departmental Library.



Macdonald Physics Building.—An Electrical Laboratory.

voted to apparatus for illustrating Mathematical Physics, and a special Physical Library chiefly devoted to reference books and periodicals relating to Physics. A store room, lavatories and Professors' Room occupy the remainder of the flat.

The Third Floor contains the Elementary Laboratory, a room 60 feet square, devoted to elementary practical work in Heat, Sound and Electricity and Magnetism. There is a Demonstrator's room adjoining, and an optical annex devoted to experiments with lenses, galvanometers, etc., which require a darkened room. On the other side of the building there is a spectroscopic room containing a six-inch Rowland grating, with mountings by Brashear, and other large spectrometers and polarimeters. Also a series of smaller optical rooms, including a photometric room, specially fitted for Arc photometry, and a dark room for photographic work. Communication between the different flats is facilitated by means of a hydraulic elevator. The building is lighted throughout by electricity, and heated by hot water. The walls are of pressed brick, and the floors of hard maple. There is a ventilating system, consisting of Tobin tubes and suitable exit flues, assisted by a fan in the roof.

The Macdonald Chemical Laboratories.

The main lecture-theatre, extending through two stories, is entered from the ground floor, and seats nearly 250 students. The lecture-table is supplied with coal-gas, oxygen and hydrogen, electricity, water, vacuum, down-draught, etc., and can be well seen from all parts of the room.

Besides the main lecture-theatre, there are three smaller class-rooms, accommodating from 40 to 60 students each.

The three principal laboratories have each a floor-space of about 2,400 square feet, and together have accommodation for nearly two hundred students working at a time. They are lighted on three sides, and have ample board space. One is intended for beginners, and the others for more advanced work, more particularly in qualitative and quantitative analysis. In connection with each of the main laboratories is a balance-room, equipped with balances by several of the best makers.

Physical Chemistry is provided for in a special laboratory, nearly 30 by 40 feet, lighted from the north, and supplied with electricity, steam, vacuum pumps, etc. The equipment of this department consists of the apparatus necessary for the determination of the specific gravities of solutions, of the depression of freezing point, and the rise of boiling point, of the densities of gases and vapours. There are constant temperature baths for accurate measurement of solubilities, Kohlrausch's apparatus for determining the electrical conductivity of solutions, and the apparatus necessary for measuring the electromotive forces generated between metals and their solutions, and in voltaic cells generally. There are also calorimeters for measuring the heat effects produced in chemical reactions. There is on the same floor an optical room furnished with refractometers for measuring

the refractive indices of solutions, goniometers, polariscopes and spectroscopes. Other forms of apparatus will be added as required for research work.

Immediately adjoining the laboratory of Physical Chemistry is the Photographic department, supplied with two dark rooms, arranged on the maze system, and supplied with the necessary appliances for all ordinary photographic work, including an enlarging camera. Apparatus for micro-photography will shortly be added to the equipment.

The laboratory for Gas Analysis has a northern exposure, and is fitted with a large tank, to contain water at the temperature of the room, for use in the measurement of gases. The tables are arranged for work with mercury, and the laboratory is supplied with the apparatus of Hempel, Dittmar, Orsat, Elliot, and others. It contains also Fleuss, Boltwood and Töpler pumps for providing high vacua.

The laboratory for Electrolytic Analysis is supplied with accumulators, thermopile, platinum electrodes, rheostats, ammeters, voltmeters, etc.

Another room has lately been equipped with electric furnaces and other appliances for electro-chemical work.

The Organic Department comprises a laboratory for preparations and research, a combustion room for analysis, a dark room for polariscope and saccharimeter work, and a lecture room. The laboratory is fitted with all the necessary apparatus for organic research—special hoods for work with poisonous gases, regulating ovens for digesting and drying at various temperatures, filter presses for the extraction of raw materials, and various forms of apparatus for distillation in vacuo. The dark room is equipped with polariscopes and saccharimeters for sugar work. There is a large quantity of the necessary organic chemicals, which are supplied free of charge to students engaged in routine or research work in this department.

The laboratory for Determinative Mineralogy has places for 28 students, and is supplied with abundant material for practical work. It adjoins the lecture-room, in which the lectures on advanced mineralogy are delivered. The mineralogical department is also provided with suitable machinery, run by electricity, for cutting and polishing minerals.

The Library contains a valuable collection of the most recent English, French and German books, and sets of various journals and transactions, including the Berichte der Deutschen Chemischen Gesellschaft, Journal für praktische Chemie, Chemisches Central-blatt, Fresenius' Zeitschrift für Analytische Chemie, Annales de Chimie et de Physique, Journal of the Chemical Society, Chemical News, Mineralogical Magazine, Mineralogische und Petrographische Mittheilungen, etc. The library is open to students under such restrictions as are necessary to prevent damage or loss of books.

The rooms for allied purposes have, as far as possible, been grouped together on the same floor, and there is a hydraulic lift running from the basement to the attic. The offices and principal laboratories and supply rooms are also connected by a system of telephones. The building is practically fire-proof.

Botanical Laboratories.

The Botanical Laboratories occupy the upper floor of the central Arts building.

The laboratory for general Morphology provides table accommodation for twenty students, and is equipped with all the necessary appliances for the practical study of plants, either fresh or dry.

In connection with this laboratory, a large collection of dried plants is maintained, from which material is drawn for practical work.

The laboratories for special Morphology at present afford accommodation for twelve students. Each table is provided with a complete outfit of instruments and reagents. Provision is also made for accurate micrometric work, and for the production of accurate drawings by means of the camera lucida and Leitz's drawing instrument. More special instruments, including polariscope, spectroscope and photographic apparatus, afford opportunity for detailed studies in these several directions.

Ample provision for material of all kinds is found in the resources of the Botanic Garden, and in a large supply of stock preparations.

An investigator's table held by the University at the Biological Laboratory, Wood's Hall, Massachusetts, is available for such students as may successfully complete the advanced course of the Third and Fourth Years.

Botanic Garden.

The Botanic Garden occupies a commanding situation at the summit of the Cote des Neiges Hill, distant from the College about one and one-half miles, and comprises an area of about nine acres.

The conservatories embrace a continuous series of houses having a total ground area of 4,600 square feet. They include a camellia house, 20 x 60 feet; a mixed stove, 20 x 80 feet; a greenhouse, 20 x 60 feet; and an Australian house, 20 x 30 feet.

The collection comprises an important and somewhat extensive representation of Australasian plants, and type-forms of vegetation from various parts of the world.

During the winter material for practical study is provided in large quantity to meet the requirements of the College and of such of the City schools as may have acquired special privileges in this respect.

Students are admitted to the garden ad allowed the use of material for practical study, under special conditions. For this purpose, students' tickets are issued at the opening of the session to all those taking the course in Botany.

The public are admitted to the garden without charge, every day, except Sunday.

Zoological Laboratories.

The Zoological Department occupies the whole of the uppermost floor of the east wing of McGill College and the larger portion of the floor immediately below.

It consists of :

(*a*). A large laboratory affording accommodation for a class of 90 students.

(*b*). A smaller laboratory capable of seating about 18 students.

(*c*). Three smaller laboratories fitted up for purposes of research.

(*d*). A room fitted up for the University Osteologist.

Dissecting trays, simple and compound microscopes, reasonable quantities of the ordinary reagents and of glass are provided by the department, but students must provide themselves with dissecting instruments, and with razors.

The Department is provided with four large tanks and a number of smaller ones in order to maintain a supply of fresh specimens throughout the winter.

The subjects for practical work, are, so far as possible, selected from species inhabiting the vicinity of Montreal.

The laboratories are well provided with thermostats, microtomes, and other instruments required for advanced research. There is also a small library attached to the department.

Petrographical Laboratory.

The Petrographical Laboratory, containing the chief rock collections of the University, is situated in the Macdonald Chemistry and Mining Building, and is arranged for the use of Honour and Graduate students. It is provided with a number of petrographical microscopes by Seibert and Crouch, as well as with models, sets of thin sections, electro-magnets, heavy solutions, etc., for petrographical work.

For purposes of study and comparison, in connection with advanced work and petrographical investigation, Dr. Adams' extensive private collection of rocks and thin sections is available.

TIME TABLES.—FACULTY OF ARTS.

FIRST YEAR—MEN.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Latin.	Math.	Math.	Greek.	Math.	
10	Math.	Greek.	Latin.	French.	Greek.	
11	French.	German.	German.	German.	English.	
12	Physics.	French.	English.	Latin.	Physics.	
2	Greek.	English.	French.	English.	Latin.	
3	English.				German.	
4						
5						

FIRST YEAR—WOMEN.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Greek.	Physics.	French.	Greek.	Greek.	
10	English.	English.	Greek.		Math.	
11	German.	Math.	Latin.	English.	French.	
12	Latin.	Latin.	Math.	German.	Latin.	
2	Math.	French.	German.	French.	German.	
3			English.	Physics.	English.	
4						
5						

SECOND YEAR—MEN.

Hours.	Monday	Tuesday	Wednesday	Thursday.	Friday.	Saturday
9	German. Hebrew.	Logic.	Greek.	Logic.	Math.	Chem. Lab.
10	Latin	Latin.	German. Hebrew.	German. Hebrew.	Hebrew. German.	Chem. Lab.
11	Math.	Chemistry.	French.	French.	Latin.	Chem. Lab.
12	English.	Greek.	Chemistry.	English.	Chemistry.	
2	Greek.	Biology.	English	Math.	Biology.	
3	Biol. Lab.	Chem. Lab.	Latin.	Biol. Lab.	French	
4	Biol. Lab.	Chem. Lab.	Logic.	Biol. Lab.	Greek.	
5	French.	Chem. Lab.				

SECOND YEAR—WOMEN.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Greek.	Latin.	French.	Latin.	Greek.	Chem. Lab.
10	German.	Math.	Math. Chem. Lab.	Math.	German.	Chem. Lab.
11	English	Chemistry.	Greek. Chem. Lab.	English.	Latin.	Chem. Lab.
12	Logic	Logic.	Chemistry.	Logic.	Chemistry.	
2	French.	French.	Latin.	German.	English.	
3	Biol. Lab.	Greek.	Biology.	Biol. Lab.	French.	
4	Biol. Lab.	Biology.	German.	Biol. Lab.	Chem. Lab.	
5					Chem. Lab.	

PRIMARY COURSES (THIRD AND FOURTH YEARS).

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Geology. Sanskrit. Hist. of Philos.	Chem. History. Greek.	Geology. Sanscrit. Astr. (*a*) Opt. (*b*) Mechanics. Hist. of Philos	Latin. Hebrew. German.	Zoology. Hebrew. German.	Chem.: Lab. Geol.: Lab.
10	Botany. English. Mathematics Physics (*B*).	Eng. Comp.	Latin.	Botany. English. Math. Physics (*B*)	Geology. Sanskrit. Hist. of Phil. Ast. (*a*) Opt. (*b*) Mechanics.	Chem.: Lab. Geol.: Lab.
11	Chemistry. History. Greek.	Latin. Hebrew. German.	Zoology. Hebrew. German.	Chemistry. History. Greek.	History. Greek.	Chem.: Lab. Geol.: Lab.
12	Moral Philos. French.	Physics (A) Moral Philos. French.	English. Comp.	Physics (*A*) Moral Philos. French.	Moral Philos French.	Geol.: Lab.
2	Bot. Lab. Physics Lab. Comp Philol Chem. Lab.	Pædagogy. Zool. Lab. Hist. of Phil. Sanskrit.	Chem. Lab. Latin.	Bot. Lab. Physics Lab. Comp. Phil.	Pædagogy Zool. Lab.	
3	Bot. Lab. Physics Lab. Chem. Lab.	Zool. Lab. English. Mathematics.	Chem. Lab.	Bot. Lab. Physics Lab.	Zool. Lab. English. Mathematics	
4	Art & Arch. Logic & Met. Roman Law. Chem. Lab.	Logic & Met. Roman Law.	Roman Law. Bot. Lab. Chem. Lab.	Art & Arch. Logic & Meta. Roman Law.	Logic & Met Rom Law (*b*) Cons. Law (*a*)	
5	Political Eco. Const. L. & H.	Political Eco Const. L. & H.	Bot. Lab.	Pol. Econ. Const. L. & H.	Pol. Econ. Const. L. & H.	

) Heat, Light and Sound.
) Magnetism and Electricity.
) During First Term. (*b*) During Second Term.

B.—The term Primary Course denotes the first course taken in the subject subsequent to the
ediate Examination, whether in the Third or Fourth Year.

Matriculation, Exhibition, Scholarship and Supplemental Examinations, September, 1901.

DATE.	Hour.	Matriculation.	First Year Exhibitions.	Supp. to First Year Sessional.	Second Year Exhibitions.	Supplemental to Intermediate.	Scholarships (Third Year).	Supp. to Third Year Sessional.
Wed. 11	9	Latin Books and Sight Translation.	Latin Books and Sight Translation.	Latin Books.	Latin Books and Sight Translation.	Latin Books.	Latin Books, Math. (Anal. Geom. (1).)	Latin Books.
	2	Latin Grammar and Composition.	Latin Gram., Composition, Higher Composition and Sight Translation.	Latin Composition, Sight Translation and History.	Latin Composition, Grammar and History.	Latin Composition, Sight Translation, History and Literature.	Latin Composition and Sight Translation.	Latin Composition, Sight Translation, History and Literature.
Thurs. 12	9	Mathematics Pt. I (Euclid.)	Mathematics Pt. I (Euclid I–IV).	Mathematics.	Mathematics, (Eucl., Alg., Trig.)	Mathematics.	Math. (Anal. Geom. (2)); Anc. History; Chem.	Mathematics.
	2	Mathematics Pt. I (Alg. and Arith.)	Mathematics Pt. I (Alg. and Arith.)	Mathematics.	Mathematics, (Geometry.)	Mathematics.		
Fri. 13	9	English Grammar and History.	English Grammar.	English Literature, History and Composition.	English Literature (Spenser & Tennyson) & Composition.	English Language, Literature and Composition. Logic.	English Literature (Shakespere and Milton), Logic.	English.
	2	English Literature, Dictation and Composition.	English Literature. (Scott, Shakespere and Milton).			Biology.	English Literature (Charles Lamb) and Composition; Chem.	
Mon. 16	9	French.	French.	French.	French.	French.	Math. (Calculus); French; Chemistry	French: Botany.
	2	German.	German.	German.	German.	German.	German.	German.
Tues. 17	9	Mathematics Pt. II.	Mathematics Pt. II.	Physics.	Mathematics, (The. of Eq., Alg.)	Mathematics.	Mathematics, Higher Alg., Trig.)	Mathematics.
	2	Elementary Nat. or Phys. Science.	English Literature (Macaulay) and Composition.		Modern History and English Language (French).	Chemistry.	Modern History, Chemistry.	
Wed. 18	9	Greek Books and Sight Translation.	Greek Books and Sight Translation.	Greek Books.	Greek Books and Sight Translation.	Greek Books.	Greek Books.	Greek Books.
	2	Greek Grammar and Composition.	Greek Gram., Composition, Higher Composition and Sight Translation.	Greek Composition, Sight Translation and History.	Greek Composition, Grammar and History.	Greek Composition, Sight Translation, History and Literature.	Greek Composition and Sight Translation.	Greek Composition, Sight Translation, History and Literature.
Thurs. 19	9		English Literature, (Morley.)					

CHRISTMAS EXAMINATIONS, DECEMBER 1901.*

Day.	Date	First Year.	Second Year.	Third Year.	Fourth Year.
Monday.	16	Latin.	Latin.	Mechanics.	Astronomy.
"	16		M'matics, P.M.	German.	German.
Tuesday.	17	Greek.	Greek.	Greek.	Greek.
"	17		Biology, P.M.	Zoology, P.M.	Geology, P.M.
Wednesday.	18	Mathematics.	Psychology.	Moral Phil.	Moral Philosophy.
"	18	French, P.M.	French, P.M.	Latin.	Latin, P.M.
"	18	Physics.	Chemistry.	Botany.	Botany.
Thursday.	19	German. P.M.	German, P.M.	French, P.M.	French, P.M.
"	19		Hebrew, P.M.	Hist. of Phil.	Hist. of Phil.
Friday.	20	English.	English.	Logic.	Logic.

* The Christmas Examinations are obligatory on all Undergraduates, and on Partials desiring to be Undergraduates, and the standing gained therein will be taken into account by the Faculty at the close of the session. The results will be made known after the Christmas vacation.

The above time table is subject to modification, especially in regard to the Third and Fourth Years.

SESSIONAL AND HONOUR EXAMINATIONS, APRIL, 1902.

DATE.	FIRST YEAR.	SECOND YEAR.	THIRD YEAR.	FOURTH YEAR.
APRIL.	A.M. P.M.	A.M. P.M.	A.M. P.M.	A.M. P.M.
2 Wed.	Hebrew.....	Hebrew..Chemistry.	Hebrew...Sanskrit.	Hebrew...Sanskrit.
3 Thurs.	Greek .....Greek.	Greek.....Greek.	Mechanics.	Ethics.....Ethics.
4 Fri.	Latin.....Latin.	Latin.....Latin.	Latin .....Latin	Latin .....Latin.
7 Mon.	English...English	English....English.	Ex. Physics. English.	Ex. Physics. English.
8 Tues.	....	Biology.....	Botany..Comp. Phil.	Botany....English.
9 Wed.	Geometry and Arithmetic.	Mathematics.....	Greek.....Greek.	Greek.....Greek.
10 Thurs.	Trigonometry and Algebra....	Mathematics.	Astronomy Optics....French.	Astronomy Optics....French.
11 Fri.	French ....French.	French.....French.	Metaphysics..... German.	Geology...Geology.
14 Mon.	German....German.	German....German	Zoology...English	Mechanics.....
15 Tues.	Physics.....	Logic	French German.	French.....German.
16 Wed.	.....	.....	Honour Exam'tions	Zoology...Zoology.
17 Thurs.	.....	.....	Honour Exam'tions	B. A. Honours.
18 Fri.	Advanced Sections	Advanced Sections	Honour Exam'tions	B. A. Honours.
21 Mon.	Advanced Sections	Advanced Sections	Honour Exam'tions	.....
22 Tues.	Advanced Sections	Advanced Sections	Honour Exam'tions	B. A. Honours.
23 Wed.	Meeting of Examiners and Faculty at 9.30 A.M.			
24 Thurs.	Meeting of Examiners and Faculty at 9.30 A.M.			
25 Fri.		Meeting of Corporation P.M.		
30 Wed.	Convocation for Degrees.			

The days for Honour Examinations during April are arranged by the Examiners.

Days for subjects not mentioned in above table will be arranged during the session.

Some readjustment of the days and hours above specified may be found necessary, especially in regard to the Third and Fourth Years.



Royal Victoria College.

The institution of the Royal Victoria College, in September, 1899, was a direct continuation of the work begun in 1883, during the Principalship of the late Sir William Dawson, when Lord Strathcona and Mount Royal placed a sum at the disposal of the University of McGill, for the Endowment of a College and classes for women. For many years previously it had been hoped by those interested in the education of women in Montreal that the University would extend its benefits to women, but the means necessary for carrying out such an aim had not been available. The classes were organized in 1884 as a Special Course in the Faculty of Arts, held at McGill College, separate in the main from those for men, but under identical conditions. In some of the work of the Third and Fourth Years, and in the Honour and Additional Courses, the classes were held jointly.

The ultimate aim of Lord Strathcona had been the foundation of a place of residence, and, with this object, he announced his intention of building and endowing the Royal Victoria College. By the opening of this Institution the opportunity of residence and college life is given to women-students of McGill University, working in accordance with the system previously organized in the Special Course in Arts, but under greatly improved conditions. A share in the advantages of college life is offered also to the non-resident women-students of the University, who are henceforth also students of the Royal Victoria College. Fresh elements are added in the organization of a Musical Department, and in the institution of Resident Women Tutors. These additions are in accordance with the general aim of the College; viz., the higher education of women, and mainly to qualify them

to take degrees in Arts (including Pure Science), and to provide them with instruction in those branches of a liberal education necessary thereto and in such other subjects as may from time to time be determined.

The College being a residential College for the Women-Students of McGill University, its students, whether Undergraduates, Conditioned Students, or Partial, follow the courses in Arts and Pure Science offered by the University, (see 74-129). Lectures are given by the Professors and Lecturers of the University, either in the College or in the University buildings, and students attend the University Laboratories for practical instruction. In addition to the instruction given in lectures and laboratory practice, the students of the Royal Victoria College are assisted in their studies by the Resident Tutors.

Exhibitions and Scholarships.

For a statement of the Exhibitions and Scholarships open to Women Students of the University, see pp. 44 *et seqq.*

In addition to these, and further to encourage residence within the College walls of students who might otherwise arrange to board in the city, the Warden and Faculty are empowered to make nominations in any of the four College years to not more than three additional Exhibitions of the value of $100 each.

Music.

Apart from the University Courses, instruction in Music is offered at the College, for which a separate fee is charged. The instruction includes the Pianoforte in all its branches (solo, ensemble playing, concertos, duos for two pianofortes); Singing (voice production, vocalization, sight-singing, ear-tests, solo and part singing); and Lectures on Theory (elements of music, harmony, counterpoint, and history of music). Attendance at certain of these Courses is expected of all students of music.

Gymnasium.

The Gymnasium is in the charge of Miss Holmstrôm, graduate of the Posse Gymnasium, Boston, and of the Harvard Summer School, who teaches on Swedish principles. Special attention is devoted to the application of exercise in cases of physical weakness, Miss Holmstrôm having had considerable experience in the medical branch of her work. All students undergo a physical examination on entering upon the gymnastic course, under the superintendence of Dr. R. Tait Mackenzie, B.A., M.D., Assistant Lecturer in Anatomy at the University. Teams of Basket-Ball are formed, and, when weather permits, this and other exercises are practised on the lawn, at the back of the College building. This ground is also provided with lawn-tennis courts.

The College Building.

The College is situated on Sherbrooke Street, at the head of Union Avenue, in close proximity to the University buildings and to the slopes of Mount Royal. The building is fireproof, and much thought and artistic care have been given to the furnishing and decoration.

On the ground floor are the offices of the Administration, including the rooms of the Warden and Secretary, the Professors' common room, lecture rooms (English, French, German, Mathematics) and a spacious dining hall. On the first floor are other lecture rooms (Latin, Greek, Logic, and Philosophy), the library, reading-room, Students' common room, and a handsome assembly hall. On the second and third floors are the rooms of the resident students. These are of varying size and plan. Each student has a separate bedroom, and, as a rule, one sitting-room is shared by the occupants of the two or three bedrooms immediately adjoining. The entire use of a sitting-room can be obtained, and there are some rooms which may be used as study-bedrooms. The rooms are completely furnished, and no article of furniture

need be brought by the students. No part need be taken by the students in the care of their rooms.

In addition to the lawn at the back of the College, the students are entitled to use, subject to regulations, the grounds of McGill University, with its tennis-courts, skating-rink, etc.

A nucleus of the College Library has been formed in a set of books, comprising the stated books and others referred to in connection with the University curricula, the modern language course being especially well represented. There are also works of general literature. The Library is a reading-room, and the books are not taken away; the students having access also to the University Lending Library.

Students of Music have the use of a large practising-room, and, at certain hours, of the piano in the common room, as also of the Gymnasium piano.

The Gymnasium, fully equipped in accordance with the requirements of the Swedish system, is in the basement. In connection with the Gymnasium there are bath-rooms and dressing-rooms.

The health of the students is under the charge of a competent physician practising in Montreal, who may be consulted free of charge.

Students of the Royal Victoria College, as students of McGill University, are entitled to the use of the University Library, containing about 70,000 volumes, and the Peter Redpath Museum containing large collections in Mineralogy, Palæontology, Zoology, Botany, Archæology, and Ethnology, and to work in the Physical, Chenical, Zoological, Botanical and other laboratories and the Botanic Gardens of the University. (For particulars of laboratories, etc., see University Calendar for 1901-1902, pp. 129 *et seqq.*)

Board and Residence.

Residence in the College buildings is open to Undergraduates, Conditioned Students, or Partial Students, but the last are not received in residence unless they take courses of study

approved by the Faculty of the College. The expense of board and residence ranges from $290 to $440 in addition to the sessional fees for tuition (see pp. 72-4), according to the room or rooms occupied by the students; for a majority of the rooms the expense of board and residence is $290. These charges cover the University Session, 11th September—30th April, and the summer classes, 30th April—28th June. A deduction of $50 is made in the case of Students who go out of residence at the end of the University Session.

Applications for admission or further particulars should be addressed to the Warden, Royal Victoria College, Montreal.

ROYAL VICTORIA COLLEGE.

FIRST YEAR.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday
9	Greek.	Physics.	French.	Greek.	Greek.	
10	English.	English.	Greek.		Math.	
11	German.	Math.	Latin.	English.	French.	
12	Latin.	Latin.	Math.	German.	Latin.	
2	Math.	French.	German.	French.	German.	
3			English.	Physics.	English.	
4						
5						

SECOND YEAR.

Hours	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday
9	Greek.	Latin.	French.	Latin.	Greek.	Chem. Lab
10	German.	Math.	Math. Chem. Lab.	Math.	German.	Chem. Lab
11	English.	Chemistry.	Greek. Chem. Lab.	English.	Latin.	Chem. Lab
12	Logic.	Logic.	Chemistry.	Logic.	Chemistry.	
2	French.	French.	Latin.	German.	English.	
3	Biol. Lab.	Greek.	Biology.	Biol. Lab.	French.	
4	Biol. Lab.	Biology.	German.	Biol. Lab.	Chem. Lab.	
5					Chem. Lab.	

Faculty of Applied Science.

Dates of Examinations and Commencement of Lectures.

The supplemental examinations in Surveying will be held on Saturday, August 31st.

The supplemental examinations in all other subjects will be held on Tuesday, October 1st, and following days.

The examinations in English literature (Vacation Work, see p. 181), and the Exhibition Examinations will be held on Tuesday, October 1st, and following days.

Field Work in Surveying will commence on Monday, September 2nd.

Lectures in the First Year will commence on Tuesday, September 24th.

Lectures in the Second, Third and Fourth Years, Electrical, Mechanical, and Practical Chemistry Courses, will commence on Tuesday, September 24th.

Lectures in the Second, Third and Fourth Years, Architectural, Civil and Mining Courses, will commence on Tuesday, October 1st.

Faculty of Applied Science.

§ I. General Statement.

The Instruction in this Faculty is designed to afford a complete preliminary training, of a practical as well as theoretical nature, in the following Departments:—

I.—Architecture.
II.—Civil Engineering and Surveying.
III.—Electrical Engineering.
IV.—Mechanical Engineering.
V.—Mining Engineering and Metallurgy.
IV.—Practical Chemistry.

The Degrees conferred by the University upon such undergraduates of the Faculty as fulfil the conditions and pass the Examinations hereinafter stated are, in the first instance, "Bachelor of Science" (B.Sc.), mention being made in the Diploma of the particular Department of study pursued, and, subsequently, the Degrees of "Master of Science" (M.Sc.), and "Doctor of Science" (D.Sc.).

§ II. Matriculation and Admission.

For subjects of matriculation, conditions and fees, see pp. 11-22.

§ III. Examinations and Degrees.

1. Faculty Examinations.

There will be a Christmas examination in such subjects as shall be determined by the Faculty. Sessional examinations will be held at the end of the First and Second Years.



Macdonald Engineering Building.

II. University Examinations.

I. For the Degree of Bachelor of Science.

(*a*) There will be a Primary examination at the end of the Third Year. Candidates must pass this Examination before entering the Final Year.

(*b*) There will be a Final examination for the degree of Bachelor of Science at the end of the Fourth Year.

Successful Students will be arranged in order of merit.

II. Higher Degrees.

For regulations relating to the Degrees of "Master of Science" (M.Sc.), and "Doctor of Science" (D.Sc.), see pp. 27-8.

III. Special Provisions for Obtaining the two Degrees of "Bachelor of Arts" (B.A.), and Bachelor of Science (B.Sc.), in Six Years.

1. Undergraduates of the Faculty of Arts, who have taken all the Ordinary Mathematics of the first two years; and the Chemistry of the Second Year, and who wish to pursue their professional studies in the Faculty of Applied Science so as to obtain the degrees of B.A. and B.Sc. within the following four years, may be exempted by the Faculty of Applied Science from the Mathematics of the First Year in Applied Science and the Chemistry of the Second Year.

2. They are allowed to distribute the course of the Third and Fourth Years in Arts over three years.

3. They may complete the Arts curriculum by taking the following courses:

I. *In the Third Year:*

(*a*) Physics of Third Year.

(*b*) Either one or two of the courses which are not placed under the heading "Science" in the Arts curriculum.

(*c*) Either one or two hours weekly in English Composition.

II. *In the Fourth Year:*

(*a*) The Mathematics of the Second Year Applied Science (6 hours weekly as 1½ courses).

(*b*) Physics of Fourth Year.

(*c*) One of the courses which are not placed under the heading "Science" if only one has been taken in the Third Year.

(*d*) One hour weekly in English Composition if only one has been taken in the Third Year.

III. *In the Fifth Year:*

The Mathematics of the Third Year Applied Science (2 hours weekly as a half course), or another course under the heading "Science" in Arts curriculum.

The degree of B.A. may thus be obtained at the end of the Fifth Year from Matriculation.

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§ IV. Graduate Courses.

Students who take the Bachelor's degree in one of the courses provided by the Faculty of Applied Science may graduate in any of the remaining courses by attending one or more subsequent sessions.

Graduates may also take an advanced course in the branch in which they have received their degree. On passing an examination at the end of such advanced course, the Master's degree will be conferred without further examination, on presentation at the end of one additional year, of a satisfactory thesis on approved work.

Students are strongly recommended to take a Graduate Course, and special arrangements will be made for advanced and research work in the following :—

In Architecture—Advanced study in design. During Session 1899-1900, the problems studied were the following, finished drawings being made of the designs:—"A Students'

Hall;" "A Gothic Memorial Church;" "A Public Library;" "An Opera House." In addition, Sketch Problems (limited in time) were set as follows:—"An Entrance Gateway to a Naval Yard ;" "A Fountain in a Park."

In Chemistry and Mineralogy. (See § XI, 2, 9 and 13, and § XII, 4.)

In the determination and comparison of the errors and the co-efficients of standards of length. (See § XI, 4, and § XII, 6.)

In the determination of gravity. (See § XII, 6.)

The elasticity and strength of materials. (See § XI, 3, and § XII, 13.)

In Mining and Metallurgy—Advanced study in metallurgy and ore dressing can be carried on with great advantage in the new laboratories. (See § XI, 13, and XII, 10.)

The efficiency of pumps and hydraulic motors. (See § XI, 3, and XII, 7.)

The efficiency of power transmission by air, water, gas, steam and electricity. (See § XI, 3, 5, 11.)

The efficiency of steam, gas and hot-air engines and of air compressors. (See § XI, 11 and 15.)

The efficiency of machines and machine tools, and the power absorbed by the several processes of mechanical work. (See § XI, 11.)

The efficiency of dynamometers, belting and shafting, including investigations into the relative merits of the several unguents. (See § XII, 9.)

The efficiency of the several types of boilers, including investigations on the heat producing power of fuels. (See § XI, 15.)

On the efficiency of dynamos and electric motors. (See § XI, 5, and § XII, 5.)

The flow of water through orifices and pipes, and over weirs. (See § XI, 3, and § XII, 7.)

In Geodesy and practical astronomy. (See § XII, 6.)

In street railway design and theory, and in alternating apparatus. (See § XI, 5, and § XII, 5.)

In Physics.—The Macdonald Physics Building has been equipped and arranged with special reference to Graduate Courses and original research work in various branches of pure Physics. Every facility will be afforded in the workshops for the construction of special apparatus required for such investigations. (See § XII, 12.)

In Mathematics.—Students taking Graduate Courses will receive guidance in any advanced Mathematics required in connection with their work.

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§ V. Attendance and Conduct.

See page 30.

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§ VI. Library.

Students in this Faculty are entitled to use the University Library under the regulations cited on p. 40. Students also have access to the various departmental libraries under the special regulations by which each is governed.

§ VII. Fees and Registration.

All fees and fines are payable to the Bursar.

The fees must be paid to the Bursar and the tickets of admission to classes shown to the Dean within a fortnight after the commencement of attendance in each session. In case of default, the student's name will be removed from the College books, and can be replaced thereon only by permission of the Faculty, and on payment of a fine of $2.

Annual fee for the undergraduate course.. .. .. .. $156.00

The fees for Partial Students are :—$10.00 for Library, Athletics and Caution money ; and a fee at the rate of $5.00 for each hour of instruction per week, extending throughout the session..

Deposit for caution money for undergraduates and conditioned students.. .. .. 5.00

Fee for ordinary supplemental examination 2.00
Fee for special supplemental examination 5.00
Fee for certificate of standing 2.00
Fee for Graduate Course 150.00

Graduates of this Faculty will be required to pay only one-half of this amount.

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§ VIII. Medals, Exhibitions, Prizes and Honours.

1. The British Association Medals and Exhibition, founded by the British Association for the Advancement of Science, in commemoration of the meeting held in Montreal in the year 1884.

A British Association Medal and Prize in Books are open for competition to students of the Graduating Class in each of the six Departments of the Faculty, and, if the examiners so recommend, will be awarded to the student taking the highest position in the final examinations.

2. The Governor General's Silver Medal (the gift of His Excellency The Right Honourable the Earl of Minto),

This medal will be awarded for graduate Research Work.

3. Summer Work. (See § IX, 1.) The following prizes are offered for the best summer Theses :—

To the students of the Civil Engineering Course a prize of $25 presented by E. B. Greenshields, Esq., B.A.

To the students of the Electrical Engineering Course, a prize of $25 presented by Robert Gardner, Esq.

To the students of the Mechanical Engineering Course, a prize of $25 presented by The Crosby Steam Gage & Valve Co.

To the students of the Mining Engineering Course, a prize of $25 presented by Geo. E. Drummond, Esq.

To the students of the Architectural Course, a prize of $25 presented by A. T. Taylor, Esq., F.R.I.B.A., R.C.A., Past President of Quebec Architects' Association.

Two prizes of $35 and $15 offered by the General Mining Association of the Province of Quebec will be open for

competition to students from McGill University, Toronto University and Queen's University, and will be awarded to the two students presenting the best Summer Theses on some subject connected with mining. Preference will be given to those Theses which show decided originality.

The following Exhibitions and Prizes will be open for competition at the beginning of the Session. *Students are required to notify the Dean of their intention to compete, at least one week before the commencement of the Examination.*

4. A British Association Exhibition of $50.00 and prize of $25.00 to students entering the Fourth Year, the subjects of examination being the Mathematics and Theory of Structures of the Ordinary Course.

5. Three prizes of $25.00, $15.00 and $10.00, to students entering the Third Year, the subject of Examination being the Mathematics of the Second Year Course.

6. A Scott Exhibition of $50.00, founded by the Caledonian Society of Montreal, in commemoration of the Centenary of Sir Walter Scott, and two prizes of $25.00 and $15.00 to students entering the Second Year, the subjects of Examination being:—

(*a*) English Literature (Summer Vacation Work); (*b*) Mathematics of the First Year Course; (*c*) Descriptive Geometry of the First Year Course.

7. Two prizes, each of $10.00. presented by J. M. McCarthy, Esq., B.A.Sc., to students entering the Third Year, for proficiency in Levelling or Transit Work.

8. The sum of $150, presented by W. A. Carlyle, Esq., Ma.E., may be awarded in prizes to students of the Mining Course taking the highest positions in the degree examinations of 1902.

9. A prize of $50.00, presented by James Tighe, B.A.Sc., for research work in Hydraulics.

10. A scholarship of the value of $100, for proficiency in Practical Chemistry, on the endowment of the late Dr. T. Sterry Hunt, to students entering the Second Year of the Chemical Course. For further conditions apply to the Dean.

11. The Canadian General Electric Company, through Mr. F. Nicholls, of Toronto, has decided to present annually to the Faculty four scholarships, each in the form of a three months' course at the Company's works at Peterboro or Montreal, with the addition of a sum of $100.00.

12. Messrs. Fraser & Chalmers, of Chicago and London (Eng.), have decided to present annually to the Faculty a scholarship in the form of a three or four months' course at the Company's works at Chicago, with the addition of a sum of $150.00.

13. Prizes or Certificates of Merit are given to such students as take the highest place in the Sessional and Degree Examinations.

14. Honours.—On graduation, Honours will be awarded for advanced work in Professional subjects.

15. Science Scholarships granted by The Royal Commission for the Exhibition of 1851.—The Scholarships of £150 sterling a year in value are tenable for two or, in rare instances, three years. They are limited, according to the Report of the Commission, "to those branches of Science such as Physics, Mechanics and Chemistry, the extension of which is specially important for our national industries." Their object is, not to facilitate ordinary collegiate studies, but "to enable students to continue the prosecution of Science with the view of aiding in its advance or in its application to the industries of the country."

A nomination to one of these scholarships for the year 1901 was placed by the Commission at the disposal of McGill University, and another may be granted in 1903.

It is open to students of not less than three years' standing in the Faculties of Arts or Applied Science, and is tenable at any University or at any other Institution approved by the Commission.

16. The Mason prize of $50.00 in Electrical Engineering, given by Dr. A. F. Mason for original investigation in the practical application of Electricity.

17. Workshop Prizes.—A prize of $20.00, presented by C. J. Fleet, Esq., B.A., B.C.L., for bench and lathe work in the woodworking department, open to students of not more than two terms' standing in workshop practice.

§ IX. Special Provisions.

1. Summer Work.—During the summer vacation following the close of each year, all students entering the Third and Fourth Year, are required to prepare a thesis on a subject specified by the Faculty. Any student may substitute for the specified subject a report on some practical work in course of construction. The marks given for these theses will be added to the results of the sessional examinations. The theses must be handed in to the Dean on or before September 26th.

2. All Students in the Architectural, Civil, and Mining Engineering Courses, entering the Second and Third Years, and Students in the Civil Engineering Course entering the Fourth Year are required to be in attendance at the University on the 2nd September, when the Field-work in Surveying will commence. (See § XI, 14.)

3. All Students in the Mining Course are required to attend the Summer School in Mining, held between the Third and Fourth Years (four to six weeks of field-work), and students between the Second and Third Years are advised to do the same if practicable. The school is held in May and June.

4. Partial Students may be admitted to the professional classes upon payment of special fees. (§ VII.)

5. Students in Applied Science may, by permission of the Faculty, take the Honour Classes in the Faculty of Arts.

6. Undergraduates in Arts of the Second and Third Years, or Graduates of any University, entering the Faculty of Applied Science, may, at the discretion of the Professors, be exempted from such lectures in that Faculty as they have previously attended as Students in Arts.

7. Students who have failed in a subject in the Christmas or Sessional Examinations may regain their standing by pass-



A Room in the Architectural Department.

ing a supplemental examination at a time appointed by the Faculty. Unless such supplemental examination is passed, students will not be allowed to proceed to any subsequent examination in the subject. A second supplemental examination will not be granted unless under exceptional circumstances, to be investigated in each case by the Faculty.

8. Students may be required to answer satisfactorily a weekly paper on such subjects of the course as the Faculty may determine.

9. Credit will be given in the Sessional Standing for Class Examinations held during the session, and for the Christmas Examinations.

10. Students who fail to obtain their Session, and who in consequence repeat a Year, will not be exempted from examination in any of those subjects in which they may have previously passed, except by the express permission of the Faculty. Application for such exemption must be made at the commencement of the Session.

11. Partial Students are not eligible for prizes.

12. Certificates may be given to Students who have passed through any of the special courses attached to the curriculum.

13. The headquarters of the Canadian Society of Civil Engineers are located in Montreal. The Society holds fortnightly meetings, at which papers upon practical current engineering subjects are read and discussed. Undergraduates joining the Society as Students may take part in these meetings, and acquire knowledge of the utmost importance in relation to the practical part of the profession.

X. Departments.

I. Architecture.

The Architectural Course begins in the second year, for which the first year is preparatory especially in the departments of Mathematics and Drawing (Freehand, Lettering and Projections).

The work of the second year is of a general character, and is planned to combine to some extent the work of the Architectural and of the Civil Engineering students.

The third and fourth years are devoted to more specialized architectural study in various branches, and a fifth or graduate year has been organized for advanced study in design. For those students who desire to devote themselves more especially to the engineering side of architecture, the course is modified to include additional mathematics in the third year, and the advanced course of Theory of Structures in the fourth year. Such students devote proportionately less time to architectural drawing and designing.

In the second year the historical course embraces a rapid survey of Architectural History from ancient Egyptian to modern times. The great eras of European civilization are successively dealt with, and the evolution of styles is traced in their constructional and ornamental forms and methods.

In the third and fourth years the lectures are arranged in continuation and extension of this general course. Renaissance and Modern Architecture are studied in the third year; while a course covering both third and fourth years comprises more detailed study of Ecclesiastical, Domestic and Public Architecture, and deals with the historic evolution of architectural styles and with the problems and requirements of modern work.

Instruction in drawing is given during all four years—Freehand Drawing (ornament and figure) from the cast and Architectural Drawing occupying much of the students' time during three years of the course. Modelling in clay is included in the third and fourth years.

Problems in Architectural Design form the basis of work in the Architectural Drawing class from the earliest available period, being at first more especially combined with the study of the Classical Orders.

A course of lectures is included upon General Art History, so as to place the architectural student in touch, not only with the decorative details of the different architectural styles, but also with contemporary forms in other branches of art, especially the decorative arts employed in building.

For the scientific side of professional study the courses in Mathematics are very fully developed in the first and second years, being continued in the third year also by those who elect to take the advanced course in Theory of Structures. Descriptive Geometry is studied, as well as elementary Shades and Shadows and Perspective. A course in Surveying, both practical and theoretical, is also included ; and a short course in Geology is given in the fourth year.

Theory of Structures and Strength of materials form one of the chief subjects of study in the third year, the course also comprising instruction in Graphic Statics as well as supplementary work of a practical nature in the Testing Laboratories.

A full course on Building Construction and Architectural Engineering has been organized for the third and fourth years, common to both architectural and engineering students. It includes also Sanitation and Hygiene, Heating and Ventilation ; Specifications and Professional Practice.

During the Session 1900-1901 a special course of lectures was arranged to be available for those who are engaged in office work during the day ; it embraced the subject of Architectural Styles, their Features, Mouldings and Ornament. This course was planned with a view to preparation for the examinations for Associateship now held in colonial centres by the Royal Institute of British Architects ; it comprised a detailed study of the three great divisions of historical architecture, Classical, Mediaeval and Renaissance, in accordance with the examination-programme of the Royal Institute.

The course will be repeated in session 1901-1902, if sufficient students come forward.

The subjects of instruction and the number of hours per week devoted to each subject are as follows :—

FIRST YEAR.

	Hrs.		Hrs.
Descriptive Geometry....(p. 178),	4	Mathematical Lab.....(p. 210),	3 (a)
English.....(p. 181),	2	Physics.....(p. 182),	2
Freehand Drawing.....(p. 185),	3	Physical Laboratory...(p. 182),	3
Lettering.....(p. 185),	3	Shopwork.....(p. 218),	7
Mathematics.....(p. 188),	10		

SECOND YEAR.

	Hrs.		Hrs.
Architecture(Elements of) (p. 169),	1	Mathematics.....(p. 189),	6
Architecture (History)....(p. 168),	2	Physics.....(p. 182),	2
Chemistry.....(p. 172),	3	Chemical Lab.....(p. 173),	3
Descriptive Geometry)....(p. 178),	3	Physical Lab.....(p. 182),	3
Drawing and Design.....(p. 170),	7	Shopwork.....(p. 218),	3
Freehand Drawing.....(p. 170),	4		

THIRD YEAR.

	Hrs.		Hrs.
Architectural Engineering(p. 171),	2	Graphical Statics...(p. 175),	2 (a)
Architecture.....(p. 169),	1	Mapping.....(p. 200),	3
Architecture (History)....(p. 169),	2	Mathematics.....(p. 189),	3 (opt.)
Art History.....(p. 169),	1	Modelling.....(p. 170),	3 (b)
Descriptive Geometry (p. 179),	3 (a)	Municipal Engineering.....(p. 177),	1 (opt.)
Designing or Drawing.... (p. 170),	13 (a), 10 (b)	Surveying.....(p. 199),	3
Freehand Drawing..... (p. 170),	5 (a), 7 (b)	Theory of Structures(p. 174),	3
		Testing Laboratory (p. 175),	3 (b)

FOURTH YEAR.

	Hrs.		Hrs.
Architectural Engineer'g(p. 171),	2	Modelling.....(p. 170),	3 (b)
Architecture.....(p. 169),	2	Municipal Engineering (p. 177),	1 (opt.)
Art History.....(p. 169),	1	Theory of Structures.. (p. 174),	4 (opt.)
Designing.....(p. 170),	20	Testing Laboratory.... (p. 175),	4 (opt.)
Freehand Drawing and Water Colouring (p. 170)	6 (a), 9 (b)		
Geology.....(p. 186),	3 (a)		
Graphical Statics....(p. 175),	3 (opt.)		

II. Civil Engineering.

The courses of study in this Department are designed to give to the student a sound theoretical and practical training in the sciences and principles which underlie the profession of

a civil engineer. It is scarcely possible for any one person to become proficient in all branches of civil engineering, so wide in its scope and so inclusive in its purpose. As generally defined it is the " art of economically directing the great sources of power in nature to the use and convenience of man," by the construction of roads, railways, bridges, aqueducts, viaducts, canals, docks, harbours, breakwaters, light-houses, by the construction and adaptation of machinery, by the lighting and drainage of cities and towns, and by the exploitation of mines. All these works are more or less governed by the same principles, and in these principles the student is carefully instructed, and by means of numerous problems occuring in every day practice, he is taught to apply his knowledge to the actual conditions of life.

During the session arrangements are made for the delivery, by distinguished engineers, of special lectures or short courses of lectures on actual works of construction.

Provision is made, by means of advanced classes, for graduates and special students to continue their studies and to engage in researches with a view to the solving of some of the numberless problems which confront the engineer in every direction. Much valuable work of this character has been already accomplished, and especial reference may be made to the fact that for several years graduates of other Universities —some holding scholarships under the Royal Commissioners for the Exhibition of 1851—have carried out investigations in the several laboratories.

The subjects of instruction and the number of hours per week devoted each subject are as follows :—

FIRST YEAR.

	Hrs.		Hrs.
Descriptive Geometry...(p. 178),	4	Physics .....(p. 210),	2
English.....(p. 181),	2	Mathematical Lab. ..(p. 182),	3 (a)
Freehand Drawing.....(p. 185),	3	Physical Laboratory.(p. 182),	3
Lettering.....(p. 185),	3	Shopwork .....(p. 218),	7
Mathematics..... .....(p. 188),	10		

Second Year.

	Hrs.		Hrs.
Building Construction	(p. 171), 1	Physics	(p. 182), 2
Chemistry	(p. 172), 3	Surveying	(p. 199), 3
Descriptive Geometry	(p. 178), 3	Chemical Laboratory	(p. 173), 3
Descriptive Mechanism	(p. 190), 1	Physical Laboratory	(p. 182), 3
Mapping	(p. 199), 6	Shopwork	(p. 218), 4
Mathematics	(p. 189), 6		

Third Year.

	Hrs.		Hrs.
Descriptive Geometry	(p. 179), 4	Railway Structures	(p. 202), 3 (b)
Geology	(p. 186), 3	Roads and Canals	(p. 202), 2
Graphical Statics	(p. 175), 2 (a), 3 (b)	Structural Engineering	(p. 178), 2
Mapping	(p. 199), 6	Surveying	(p. 199), 2
Mathematics	(p. 189), 2	Theory of Structures	(p. 174), 3
Mechanical Drawing	(p. 191), 3 (opt.)	Thermodynamics	(p. 203), 1
Municipal Engineering	(p. 177), 1	Testing Laboratory	(p. 175), 3
Museum Work in Geology	(p. 186), 1 (b)	Thermodynamic Lab.	(p. 203), 2 (b)

Fourth Year.

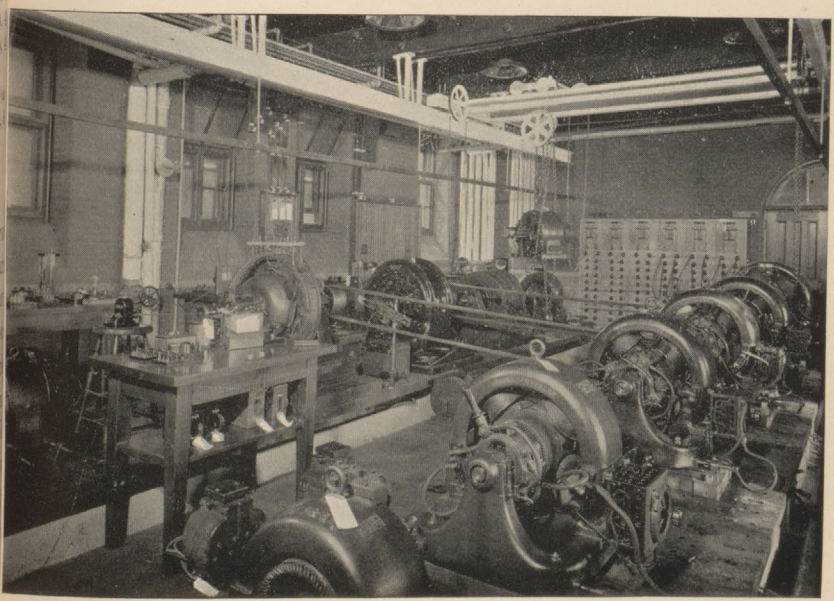
	Hrs.		Hrs.
Designing	(p. 176), 6	Railway Engineering	(p. 202), 2
Geodesy	(p. 199), 2	Structural Engineering	(p. 178), 2
Graphical Statics	(p. 175), 3	Theory of Structures	(p. 174), 4
Hydraulics	(p. 176), 2	Geodetic Laboratory	(p. 200), 4
Mechanical Engineering	(p. 190), 2 (a)	Hydraulic Laboratory	(p. 177), 3 (a)
Municipal Engineering	(p. 177), 1	Testing Laboratory	(p. 175), 6

III. Electrical Engineering.

The first two years of the Undergraduate course of instruction in Electrical Engineering are devoted mainly to preparation in mathematics, physics, chemistry, mechanics, drawing, shopwork and work in the physical and chemical laboratories. The electrical studies of the Third Year consist of the principles of electro-magnetism and continuous current dynamo electric machinery—two lectures per week; the principles of electrical measurement—one lecture per week; and four periods of three hours each in the Physical and Electrical Engineering laboratories. The Fourth Year is devoted prin-



An Electrical Engineering Research Laboratory.



Alternating Current Dynamo Laboratory.

cipally to electrical work. Lectures and recitations on alternating current phenomena, including the principles of action and design of alternating current machinery for lighting and power purposes—three lectures per week ; electric lighting systems, including central station design and operation, street railways, electric power transmission, etc.,—three lectures per week ; and three periods of three hours each in the electrical engineering laboratory. In the second term of the Fourth Year a choice may be made between the following options : electro-chemistry, advanced thermodynamics, hydraulics (second term). Each Fourth Year student is required to present a thesis giving the results of a suitable experimental investigation.

The subjects of instruction and the number of hours per week devoted to each subject are as follows :—

First Year.

	Hrs.		Hrs.
Descriptive Geometry	(p. 178), 4	Physics	(p. 182), 2
English	(p. 181), 2	Mathematical Laboratory,	(p. 210), 3 (a)
Freehand Drawing	(p. 185), 3	Physical Laboratory	(p. 182), 3
Lettering	(p. 185), 3	Shopwork	(p. 218), 7
Mathematics	(p. 188), 10		

Second Year.

	Hrs.		Hrs
Chemistry	(p. 172), 3	Mechanical Drawing	(p. 191), 3
Descriptive Geometry	(p. 178), 3	Physics	(p. 182), 3
Kinematics of Machines	(p. 190), 3	Chemical Laboratory	(p. 173), 3
Mathematics	(p. 189), 6	Physical Laboratory	(p. 182), 3
		Shopwork	(p. 218), 6

Third Year.

	Hrs.		Hrs.
Chemistry	(p. 172), 1	Theory of Structures	(p. 174), 3
Direct Current Dynamo Machinery	(p. 179), 2	Thermodynamics	(p. 203), 2
Dynamics of Machines	(p. 190), 2	Chemical Laboratory	(p. 173), 3
Machine Design	(p. 191), 1	Electrical Engineering Laboratory	(p. 180), 6
Mathematics	(p. 189), 3	Physical Laboratory	(p. 183), 6
Mechanical Drawing	(p. 191), 3	Testing Laboratory	(p. 175), 3 (b)
Physics	(p. 182), 2 (a), 1 (b)	Thermodynamic Lab.	(p. 203), 3 (b)

FOURTH YEAR.

	Hrs.		Hrs.
Alternating currents and Alternating current machinery	(p. 179), 3	Hydraulics	(p. 175), 2
Dynamics of Machines	(p. 190), 2	Machine Design	(p. 191), 1 (a)
Electro-Chemistry	(p. 173), 1 (b)	Mechanical Engineering	(p. 191), 2 (a)
Electrical Designing	(p. 179), 4	Thermodynamics	(p. 203), 2
Electric Lighting	(p. 179), 3 (a)	Electro-Chemical Lab.	(p. 174), 3 (b)
Electric Railways	(p. 180), 3 (b)	Electrical Engineering Lab	(p. 180), 9
Electrical Measurements	(p. 185)	Hydraulic Laboratory	(p. 177), 3 (b)

IV. Mechanical Engineering.

The complete Undergraduate course in Mechanical Engineering extends over four years, and provision is made for a fifth year or Graduate course in advanced experimental and other work.

The first two years of the Undergraduate course of instruction are largely devoted to preparation in mathematics, physics, chemistry, mechanics, drawing, and shopwork. During the second year an elementary series of lectures on Descriptive Mechanism serves to introduce the subject of machine construction and machinery in general, and one lecture and one exercise class per week are devoted to the Kinematics of Machines.

While motion without regard to force is treated in the Kinematic course, the action of external forces in producing or changing motion in the links of mechanisms is considered in the third and fourth years, under the head of Dynamics of Machines. Two lectures per week are given in this subject in each year, and exercise classes are held for the purpose of working the problems necessary for illustration.

The work in Machine Design is carried on during the third and fourth years in conjunction with the practical instruction in mechanical drawing and designing in the Drawing Rooms.

A course of two lectures per week is given, during the Fourth Year, on Mechanical Engineering as applied to questions connected with Power Installations and Prime Movers.

A large portion of the work of this course is supplementary to, and follows, the instruction given in Thermodynamics, which extends over the Third and Fourth Years. (See page 203)

Instruction in Workshop Practice (see page 218) is given in each of the four years. It is of a systematic nature, and is intended to prepare for, but by no means to replace, that practical experience of workshop operations on a commercial basis which every mechanical engineer must obtain for himself.

The work of the Lecture Rooms is illustrated throughout the course by experimental work carried out by the student, and by demonstrations in the laboratories of the department.

Arrangements are made for occasional visits to power-plants and manufactories of importance.

The subjects of instruction and the number of hours per week, devoted to each subject are as follows :—

First Year.

	Hrs.		Hrs.
Descriptive Geometry	(p. 178), 4	Physics	(p. 182), 2
English	(p. 181), 2	Mathematical Laboratory	(p. 210), 3 (a)
Freehand Drawing	(p. 185), 3	Physical Laboratory	(p. 182), 3
Lettering	(p. 185), 3	Shopwork	(p. 218), 7
Mathematics	(p. 188), 10		

Second Year.

	Hrs.		Hrs
Chemistry	(p. 172), 3	Mechanical Drawing	(p. 191), 6
Descriptive Geometry	(p. 178), 3	Physics	(p. 102), 2
Descriptive Mechanism	(p. 190), 1	Chemical Laboratory	(p. 173), 2
Kinematics of Machines	(p. 190), 3	Physical Laboratory	(p. 182), 3
Mathematics	(p. 189), 6	Shopwork	(p. 218), 7

Third Year.

	Hrs.		Hrs
Dynamics of Machines	(p. 190), 2	Theory of Structures	(p. 174), 3
Graphical Statics	(p. 175), 2 (a)	Thermodynamics	(p. 203), 1
Machine Design	(p. 191), 2	Testing Laboratory	(p. 175), 3 (b)
Mathematics	(p. 189), 2	Thermodynamic Lab.	(p. 203), 3 (b)
Mechanical Drawing	(p. 191), 6	Shopwork	(p. 218), 6
Metallurgy	(p. 195), 1 (a)		

FOURTH YEAR.

	Hrs.		Hrs.
Designing	(p. 191), 6	Mechanical Engineering	(p. 191), 2
Dynamics of Machines	(p. 190), 2	Thermodynamics	(p. 203), 2
Dynamics of Machines (exercises)	(p. 190), 2	Hydraulic Laboratory	(p. 177), 3 (b)
Hydraulics and Hydraulic Machinery	(p. 177), 2	Metallurgical Lab.	(p. 196), 3 (d)
Machine Design	(p. 191), 1	Testing Laboratory	(p. 175), 3 (c)
Machine Design (exercises)	(p. 191), 1	Thermodynamic Lab.	(p. 203), 12
Metallurgy	(p. 195), 1	Shopwork	(p. 218), 4

V. Mining and Metallurgy.

I. The first two years of the undergraduate course in Mining and Metallurgical Engineering are mainly devoted to Mathematics, Mechanics, Physics, Elementary Chemistry, etc., as it is deemed desirable that the students should master the general principles underlying all scientific work before they attack the somewhat complex and specialized subjects of the professional course.

In the third year the department gives elementary courses in both Mining and Metallurgy, and a thorough course in Fire Assaying, but again the chief work of the year is in Applied Mechanics, Elementary Mechanical Engineering, Geology, Mineralogy and Chemistry.

The fourth year on the other hand is very largely given up to special work in Mining and Metallurgy, and, in addition to the lectures and demonstrations, nearly two days per week are spent in the departmental laboratories and drawing room.

The subjects of instruction and the number of hours per week devoted to each subject are as follows :—

FIRST YEAR.

	Hrs.		Hrs.
Descriptive Geometry	(p. 178), 4	Physics	(p. 182), 2
English	(p. 181), 2	Mathematical Lab.	(p. 210), 3 (a
Freehand Drawing	(p. 185), 3	Physical Laboratory	(p. 182), 3
Lettering	(p. 185), 3	Shopwork	(p. 218), 7
Mathematics	(p. 188), 10		

SECOND YEAR.

	Hrs.		Hrs.
Chemistry	(p. 172), 3	Physics	(p. 182), 2
Descriptive Geometry	(p. 178), 3	Surveying	(p. 199), 3
Descriptive Mechanism	(p. 190), 1	Chemical Laboratory	(p. 173,) 6
Mapping	(p. 199), 3	Physical Laboratory	(p. 182), 3
Mathematics	(p. 189), 6	Shopwork	(p. 218), 4

THIRD YEAR.

	Hrs.		Hrs.
Geological Excursions	(p. 186), 4 (c)	Surveying	(p. 199), 3
Geological Museum Work	(p. 186), 1 (b)	Theory of Structures	(p. 174), 3
Geology	(p. 186), 3	Thermodynamics	(p. 203), 1
Graphical Statics	(p. 175), 2 (a)	Transportation	(p. 202), 2
Machine Design	(p. 191), 2	Chemical Laboratory	(p. 173), 3
Mapping	(p. 199), 5 (a)	Determinative Mineralogy Laboratory	(p. 186), 3
Mathematics	(p. 189), 2	Fire Assaying Laboratory	(p. 195), 4 (b)
Mechanical Drawing	(p. 191), 3	Ore-Dressing Lab.	(p. 193), 2 (b)
Metallurgy	(p. 194), 1	Testing Laboratory	(p. 175), 3
Mineralogy	(p. 186), 2	Thermodynamics Lab.	(p. 203), 2 (b)
Ore-Dressing	(p. 193), 1		

FOURTH YEAR.

	Hrs.		Hrs.
Chemistry	(p. 173), 2 (b) opt.	Mining Machinery.	(p. 194), 2 (b) opt.
Designing	(p. 194), 1, 3 (b)	Mining Colloquium	(p. 194), 1
Geology and Ore Deposits	(p. 187), 1 (a), 2 (b)	Ore-Dressing & Milling.	(p. 194), 2 (a)
Geological Colloquium.	(p. 187), 1 (b)	Physiography	(p. 187), 2 (b) opt.
Hydraulics	(p. 176), 2 (a), 1 (b) opt.	Petrography	(p. 187), 1 (a)
Hydraulic Machinery	(p. 177), 1	Mechanical Engineering	(p. 191), 2 (a)
Metallurgy	(p. 195), 3, 1 (b) opt.	Chemical Lab.	(p. 174), 9 (a), 6 (b)
Metallurgical Colloquium	(p. 196), 1 (b)	Hydraulic Laboratory.	(p. 177), 3 (a)
Mineralogy	(p. 186), 2 (a)	Metallurgical Lab.	(p. 195), 4 (a), 5 (b)
Mining	(p. 193), 2 (a), 3 (b)	Ore-Dressing Lab.	(p. 194), 6 (a), 6 (b)
		Petrographical Lab.	(p. 187), 3 (b)

VI. Practical Chemistry.

The course in Practical Chemistry is arranged to give the student in the first two years a thorough knowledge of the fundamental principles of Chemistry and Physics, with sufficient Mathematics to enable him to understand the theoretical parts of these subjects.

In the two subsequent years Chemistry, analytical, organic and physical, is taught both in its purely scientific aspects and in its relation to all kinds of commercial work. Special facil-

ities are afforded for the prosecution of post-graduate research work in all the branches of Chemistry.

The subjects of instruction and the number of hours per week devoted to each subject are as follows :—

FIRST YEAR.

	Hrs.		Hrs.
Descriptive Geometry	(p. 178), 4	Physics	(p. 182), 2
English	(p. 181), 2	Mathematical Laboratory	(p. 210), 3 (a)
Freehand Drawing	(p. 185), 3	Physical Laboratory	(p. 182), 3
Lettering	(p. 185), 3	Shopwork	(p. 218), 7
Mathematics	(p. 188), 10		

SECOND YEAR.

	Hrs.		Hrs.
Chemistry	(p. 172), 3	Chemical Laboratory	(p. 173), 17
Mathematics	(p. 189), 6	Physical Laboratory	(p. 182), 3
Physics	(p. 182), 2		

THIRD YEAR.

	Hrs.		Hrs.
Chemistry	(p. 173), 3	Mineralogy	(p 186.), 2
Determinative Mineralogy	(p. 186),	Ore-Dressing	(p. 194), 1
Geology	(p. 186), 3	Chemical Laboratory	(p. 186), 18
Metallurgy	(p. 194), 1		

FOURTH YEAR.

	Hrs.		Hrs.
Chemistry	(p. 173), 4	Chemical Laboratory	(p. 174), 29
Mineralogy	p. 186), 2 (a)		

§ XI. COURSES OF LECTURES.

N.B.—The following courses are subject to such modifications during the year as the Faculty may deem advisable.

I. Architecture.

PROFESSOR :—S. H. CAPPER.
LECTURER :—H. F. ARMSTRONG.

The courses of study are as follows :—

1. General Architectural History. Second Year. (First Term), Ancient Egypt ; Greece ; Rome ; Byzantine and Early Christian Architecture. (Second Term), Romanesque ; the Monastic Orders ; Gothic ; Renaissance. Tues., 12 ; Thurs., 11. Mr. Capper.

Text Books:—Smith & Slater: "Architecture, Classic & Early Christian;" Smith & Poynter: "Architecture, Gothic & Renaissance;" (S. Low, Marston & Co.); or Hamlin: "History of Architecture." (Longmans, Green & Co.).

Reference Books:—Fergusson: "History of Architecture;" (Murray). R. Sturgis: "European Architecture." (Macmillan.)

2. Renaissance and Modern Architecture. Third Year. (First Term), Italy; Spain. (Second Term), France; England; Colonial; Modern. Wed., 12; Thurs., 9. Mr. Capper.

Text Book:—Anderson: "Renaissance Architecture in Italy." (Batsford.)

Reference Books:—Fergusson: "History of Modern Architecture." (Murray). Blomfield: "Renaissance Architecture in England." (Bell).

3. Domestic, Public and Ecclesiastical Architecture. Third and Fourth Years together. Historical Survey; modern conditions and requirements. Mon., 9. Mr. Capper.

Reference Books:—Statham: "Modern Architecture." (Chapman & Hall). Stevenson: "House Architecture." (Macmillan).

4. Elements of Architecture. Second Year. The classical Orders; arcading, mouldings, etc., classical and gothic; composition; elements of architectural effect; style. Wed., 11. Mr. Capper.

Reference Books:—Baldwin Brown: "The Fine Arts" (Murray; Scribner). Statham: "Architecture for General Readers" (Chapman & Hall).

5. Art History. Third and Fourth Years together. Sculpture; painting; the industrial arts. Tues., 9. Mr. Capper.

Reference Books:—Balwin Brown: "The Fine Arts" (Murray; Scribner). Upcott: "Introduction to Greek Sculpture," (Clarendon Press), Gardner: "Handbook of Greek Sculpture." (Macmillan).

6. Drawing and Modelling.

(*a*) Freehand Drawing from the cast (ornament and figure). Second Year, 4 hrs.; Third and Fourth Years, 6 hrs.; extra time for Water Colour work. Mr. Armstrong.

(*b*) Architectural Drawing and Design.—Mr. Capper. Second Year, 7 hrs. Studies of the orders; rendering with pen and brush. Order problems:—(Session 1899-1900): "A Pavilion in a Park;" "A Museum Staircase."

Third Year (First term), 13 hrs.; (Second term), 10 hrs. Problems in design:—(Session 1899-1900): 'A Loggia upon a Roman Doric Arcade;" "The Staircase of a Public Library;" "A Boat House and Landing Stage;" "A Provincial Museum;" "A Billiard Room." Sketch Problem (limited in time): "A Covered Bridge in a Private Park.'

Fourth Year, 20 hrs.; Problems in design:—(Session 1898-1899); "A City Club House;" "A Cottage Hospital;" "A College Chapel;" "A Small Public Hall." Sketch Problems (limited in time): 'A Stone Bridge;" "A Covered Portico and Well"

Advanced (Graduate) Course. Problems in design:—(Session 1899-1900): "A Student's Hall;" 'A Gothic Memorial Church;" "A Public Library;" "An Opera House." Sketch Problems: "An Entrance Gateway to a Naval Yard;" "A Fountain in a Park."

(*c*) Modelling. Third and Fourth Years, 3 hrs. (second term). Architectural ornament modelled in clay from the cast. Mr. Armstrong.

Architectural Engineering.

Messrs. E. E. S. Mattice, B.A.Sc. (McGill), and M. C. J. Beullac, B.Sc. (Univ. of France), of the Dominion Bridge Works, will give special courses of lectures on Mondays and Fridays, at 2 p.m., in the following :—

1. Building materials ; the history, properties, tests and uses of all materials of construction.
2. Specifications and professional practice ; the different methods of preparing specifications for estimates, instructions to bidders, and rules to be observed in writing specifications, general clauses, law of contracts.
3. Building Construction :
   (*a*) Carpentry ; frames, joints, framing of floors and roofs, partitions, bridging, furring, etc.
   (*b*) Slow burning construction.
   (*c*) Masonry.
4. Hygiene :
   (*a*) Plumbing.
   (*b*) Disposal of household refuse.
   (*c*) Heating.
   (*d*) Ventilation.
5. Steel frame buildings ; design, mill-work, steel and cast iron columns and connections, beams and girders, framing and wind bracing.

Special designs will be prepared in the drawing-room illustrating the several subjects of the lectures.

R. I. B. A. Examinations.

The Royal Institute of British Architects having decided to hold in the Colonies qualifying examinations for Associateship, and Montreal having been selected as the examination-centre for the Dominion, a special course of lectures in preparation for these examinations has been arranged and will be repeated during the winter of 1901-1902, provided a sufficient number come forward to attend it. The course will embrace the subject of Architectural Styles, their Features, Mouldings and Ornament, comprising a study in detail of the three great

divisions of historical architecture, Classic, Mediæval and Renaissance, in accordance with the programme of the Royal Institute. The lectures will be given on Monday, Tuesday and Thursday from 5.30 to 6.30 p.m., unless other times prove more convenient to the majority of those attending. The Architectural Library will be available for reading and reference to those taking this course ; it is open in the evening from 7.30 to 10.30, as well as during the day. The fee for the course is fifteen dollars ($15.00).

Architectural Equipment.

The architectural equipment consists of a representative collection of casts of architectural detail and ornament and sculpture ; of photographs and illustrations ; an arc-light electric lantern ; a large collection of slides, diagrams and models; and a library for architectural study. (See § XIII.)

Women Students.

The Architectural, Freehand Drawing and Modelling Classes are open to Women Students. Information as to admission may be obtained on application to the Dean of the Faculty or to the Professor of Architecture.

2. Chemistry and Assaying.

PROFESSORS :—B. J. HARRINGTON.
J. WALLACE WALKER.
ASSISTANT PROFESSOR :—N. N. EVANS.
DEMONSTRATORS :—J. HENDERSON.
W. S. HUTCHINSON.
F. SODDY.
D. MACINTOSH.
C. F. LINDSAY.
LECTURE ASSISTANT :—L. C. GRATON.

Students in all the departments of Applied Science are expected to take up the study of Chemistry in the Second Year, having previously acquired a knowledge of some branches of Physics in the First Year of their course. They attend a course of lectures, supplemented by tutorial classes, on the laws of Chemical Combination, Chemical Formulæ and Equa-

tions, the preparation and properties of the more important Elements and their Compounds, etc. They must also devote at least one afternoon a week throughout the session to practical work in the laboratory, where they learn the construction and use of ordinary apparatus, and perform a series of experiments designed to cultivate the powers of observation and deduction. Many of the experiments involve accurate weighing, and for this purpose the elementary laboratory is well supplied with balances. During the second term considerable attention is also devoted to the subject of Qualitative Analysis.

The lectures in the Third Year comprise :—

(*a*) A course dealing mainly with the methods and reactions employed in chemical analysis, being explanatory of the work done in the laboratory. One lecture a week during the session. (*b*) A course on the Metals and some of their more important compounds, consisting of two lectures a week during the first term. (*c*) An elementary course on Organic Chemistry, consisting of two lectures a week during the second term. (*d*) A course on the composition and analysis of Iron and Steel. One lecture a week during the second term.

The laboratory work of the Third Year comprises an extensive course of Qualitative and Quantitative Analysis, including in the latter case gravimetric, volumetric and electrolytic methods. The analysis of Iron and Steel and Water Analysis will be taken up during the second term.

Lectures in the Fourth Year include a systematic course of Organic Chemistry, and a course on Physical Chemistry, each consisting of two lectures a week. In the lectures on Organic Chemistry special attention is paid to the commoner substances which find an application in the Arts. The lectures on Physical Chemistry are divided into two parts. In the first term they include a study of such physical properties of gases, liquids and solids as are known to depend upon their chemical constitution, Thermo-Chemistry, and the law of Mass Action. The second term is devoted to Electro-Chemistry,

theoretical and applied. The lectures will be based upon the application of the gaseous laws to solutions. This will be followed by descriptions of the most recent applications of Electricity to the production of Metals and Chemicals. A short course of lectures on gas analysis is given during the session ; also a course on analytical methods, designed more particularly for Mining Students.

Laboratory work in the Fourth Year will be arranged to suit the requirements of students. Those intending to prosecute organic work will take up a complete course of Organic Preparations and Analysis, but they must also spend some time on the essential Physico-Chemical methods; while students of Physical Chemistry must spend enough time in the Organic Laboratory to become familiar with the chief methods of organic work. Those intending to devote themselves to Mineral Chemistry will omit the Organic Chemistry, but must study the more important Physico-Chemical methods, and devote a large amount of time to advanced Mineral Analysis. All students in the Chemistry Course must take up Gas Analysis.

Laboratory courses will also be provided for students who wish to make a speciality of any particular branch of Industrial Chemistry, such as the Chemistry of Oils, Iron and Steel Analysis, Bleaching, Papermaking, and manufacture of Chemicals, etc.

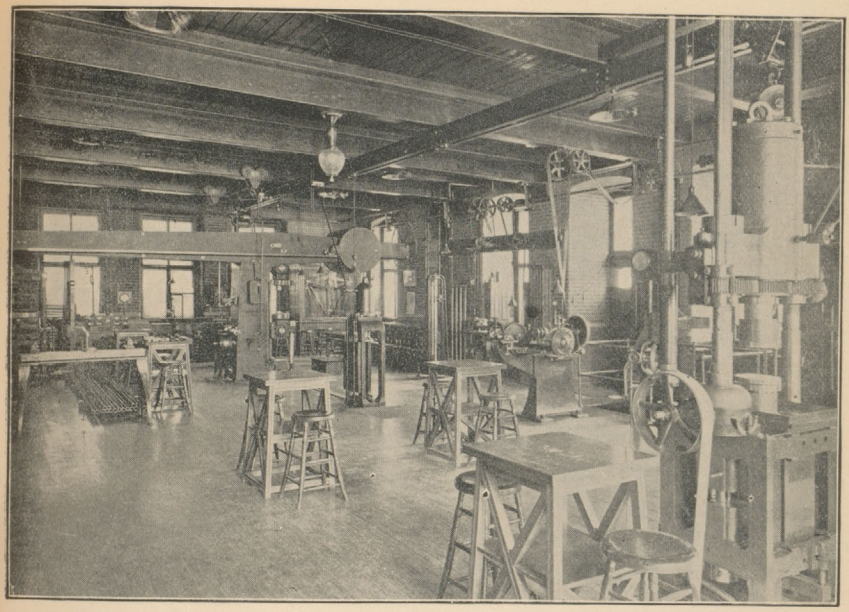
3. Civil Engineering and Applied Mechanics.

PROFESSOR :—HENRY T. BOVEY.
ASSISTANT PROFESSORS :—R. S. LEA.
E. G. COKER.
DEMONSTRATOR :—S. J. ALLEN.

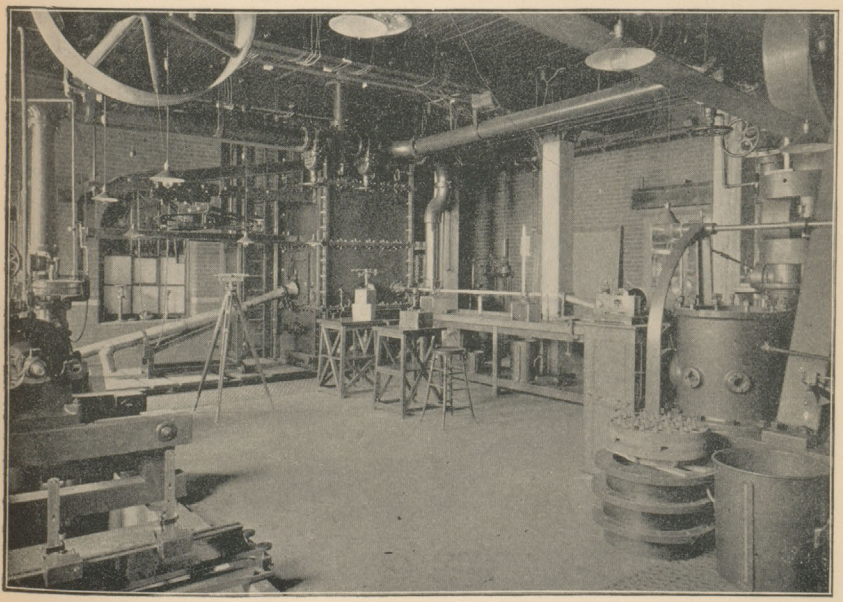
Theory of Structures.

The lectures on this subject embrace :—

(*a*) The analytical and graphical determination of the stresses in the several members of framed-structures, both simple and complex, as, *e.g.*, cranes, roof and bridge trusses, piers, etc.



An Engineering Testing Laboratory.



Hydraulic Laboratory.

(*b*) The methods of ascertaining and representing the shearing forces and bending moments to which the members of a structure are subjected.

(*c*) A study of the strength, stiffness and resistance of materials, including a statement of the principles relating to work, inertia, energy, together with a discussion of the nature and effect of the different kinds of stress, and the resistance offered by a material to deformation and to blows.

(*d*) The design and proper proportioning of beams, pillars, shafts, roofs, bridge piers and trusses, arches, arched ribs, masonry dams, foundations, earth works and retaining walls.

Graphics.—A complete course of instruction is given in the graphical analysis of arches and of bridge, roof and other trusses, and in the graphical solution of mechanical problems. It is therefore possible for the student to apply both the analytical and graphical methods of treatment, and thus to verify the accuracy of his calculations.

Text Book:—Bovey's Theory of Structures and Strength of Materials.

The Laboratory Work (see § XII.) is as follows :—

Fourth Year.—During the Fourth Year students are expected to engage in a research upon the physical properties of a material of construction, with special reference to the form and position of such material in the structure ; or research work may be taken up on the flow of water, through orifices and pipes, over weirs, and on the efficiency of vanes, pumps and hydraulic motors.

Third Year.—During the Third Year a systematised course of Laboratory Instruction is given in which students carry out for themselves a series of Tests upon Engineering Materials. The course comprises :

I. Linear measurements by Whitworth Measuring Machine, Dividing Engine, and Micrometer Gauges.

II. Calibration of Extensometers, gauges and the like.

III. Tension tests of long wires above and below the Elastic limit.

IV. Tensile and compressive tests of cast iron, wrought iron, steel, brass, copper, timber, stone, bricks and cements.

V. Transverse tests of beams under different conditions of loading and fixing.

VI. Shearing tests of iron, steel, timber, stone, and the like.

VII. Torsional tests of metals.

VIII. Tests of materials under compound stress.

IX. Tests of chains, wire cables, spikes, screws and the like.

X. Pillar tests under various conditions of loading and fixing.

XI. Determination of the various Moduli of materials by Static and Dynamic Methods.

XII. Determinations of centres of Gravity, moments of Inertia, and moments of Resistance.

XIII. The testing of concrete and cement in accordance with standard specifications.

Bridge Construction.

A course of lectures is given on practical bridge construction, including :

(*a*) The reasons governing the selection of a particular type of bridge ;

(*b*) A discussion of the loads to which the bridge will be subjected ;

(*c*) The calculations of the stresses in the several members of the bridge ;

(*d*) The determination of the sectional areas and forms of the members ;

(*e*) The design of the connections ;

(*f*) The preparation of complete engineering drawings.

Hydraulics.

The student is instructed in the fundamental laws governing the equilibrium of fluids, and in the laws of flow through orifices, mouthpieces, submerged (partially or wholly) openings, over weirs, through pipes and in open channels and

rivers. The impulsive action of a free jet of water upon vanes, both straight and curved, is carefully discussed, and is followed by an investigation of the power and efficiency of the several hydraulic motors, as, *e.g.*, Reaction Wheels, Pressure Engines, Vertical Water Wheels, Turbines, Pumps, etc.

Text Book:—Bovey's Hydraulics.

The laboratory work (see also § XII) will include the following :—

(*a*) *Flow through orifices.*—The determination of the co-efficients of discharge, velocity, etc.

(*b*) *Flow over weirs.*—The determination of the co-efficient of discharge with and without side contraction. Also tho measurement of the section of the stream.

(*c*) *Flow through pipes.*—The determination of critical velocities and of the effect upon the flow, of angles, bends and sudden changes in section.

(*d*) *Impact.*—The determination of the co-efficient of impact.

(*e*) *Motors, etc.*—The determination of the efficiency of Pelton and other wheels, of vortex and other turbines, of centrifugal and other pumps, etc.

Hydraulic Machinery.

The lectures in this Course apply the principles of hydraulics to explain the construction and action of hydraulic presses, Accumulators, Lifts, Rams, Riveting machinery, Pumps, Multi-cylinder Engines, Workshop Tools, Turbines, Centrifugal Pumps, and the like. The design of one or two types is considered in detail.

The hydraulic transmission of power and the design and construction of central stations is also included.

As far as possible working drawings are used to illustrate the lectures.

Municipal Engineering.

The lectures on this subject will embrace :—

(*a*) *Water Supply.*—The quantity and quality of water ; systems and sources of supply; rainfall and evaporation;

storage as related to the supplying capacity of water-sheds; natural and artificial purification; distribution, including the location of mains, hydrants, stop-valves, etc., combined or separate fire and domestic systems; details of construction, including dams, reservoirs, pumps, etc.; preliminary surveys, estimates of cost, statistics, etc.

(*b*) *Sewerage of Cities and Towns.*—The various systems for the removal of sewage; special methods in use for its treatment and ultimate disposal; the proportioning and construction of main, branch and intercepting sewers; manholes, flush-tanks, catch-basins, etc.; materials used in construction; estimates of cost.

Structural Engineering.

A special course of lectures on this subject is given by Messrs. E. S. S. Mattice, B.A.Sc. and M. C. J. Beullac, B.Sc., of the Dominion Bridge Company. For details of this course see § XI, 1, p. 171.

4. Descriptive Geometry.

LECTURERS:—C. H. McLEOD.
H. F. ARMSTRONG.

This course deals with the methods of representing objects on one plane so that their true dimensions may be accurately scaled. It discusses the methods employed in the graphical solution of the various problems arising in engineering design, and deals generally with the principles underlying all constructive drawing. The methods taught are illustrated by applications to practical problems. It is the aim of the work to develop the imagination in respect to the power of mentally picturing unseen objects, and, incidentally, precision in the use of the drawing instruments is attained.

First Year.—Geometrical drawing, orthographic projections, including penetrations, developments, sections, etc. Isometric projection.

Second Year.—Problems on straight line and plane. Projections of plane and solid figures. Curved surfaces and tan-

gent planes. Intersections of curved surfaces. Axometric projections. Shades and shadows.

Third Year.—Mathematical perspective and perspective of shadows, etc. Spherical projection and the construction of maps. (This course, is given under Surveying and Geodesy, see XI, 14).

5. Electrical Engineering.

PROFESSOR:—R. B. OWENS.
LECTURER:—L. A. HERDT.
DEMONSTRATOR:—J. W. FRASER.

Undergraduate Courses.

1. Electro-Magnetism and the Magnetic Circuit. The theory and application of the laws of electro-magnetism and the laws of the magnetic circuit. T., Th., at 9—Mr. Herdt. First term.

2. Direct Current Dynamo-Electric machinery. The principles of action of commutating and rectifying machines are discussed, and their practical design considered upon the general lines developed by Hopkinson and Kapp, and used by our best makers. Each student is required to design and make complete drawings of a direct current machine. T. Th., at 9—Professor Owens. Second term.

3. Alternating Currents and Alternating Current machinery. Theoretical consideration of variable current flow in circuits containing resistance, inductance and capacity under different conditions. The principles of action of synchronous and induction apparatus. Complete designs of one or more types of alternating current machines are required. M., W., F., at 11—Professor Owens. First and Second terms.

4. Electric Lighting and Systems of Electric Distribution. The location, design and operation of central and isolated lighting plants. The design and construction of distributing lines. Arc and incandescent lamps. The application of motors for general power purposes. Each student is required to design a lighting or power plant, making drawings and estim-

ates for its construction, and to make a test of, or a report on, a commercial plant. T., W., F., at 10—Mr. Herdt. First term.

5. Electric Railways and Electricity in Engineering Operations. The location design and operation of power plants for city and inter-urban service ; line and track construction, car equipment. Electric locomotives for special service, electricity in mining, ventilating, hoisting, etc. Station economics. T., W., F., at 10—Mr. Herdt. Second term.

6. Electrical Engineering Laboratory :

(*a*) Includes such tests of direct current dynamos, motors, boosters, motor-generators, dynamotors, converters, open and closed coil constant current machines, and arc and incandescent lamps as illustrate the principles of their action. T., Th., 2-5. First and Second terms.

(*b*) Includes similar tests upon alternators ; synchronous motors, compensators and converters ; transformers, potential regulators, reaction coils, frequency and phase-changing apparatus, etc. M., W., F., 2-5. First and Second terms.

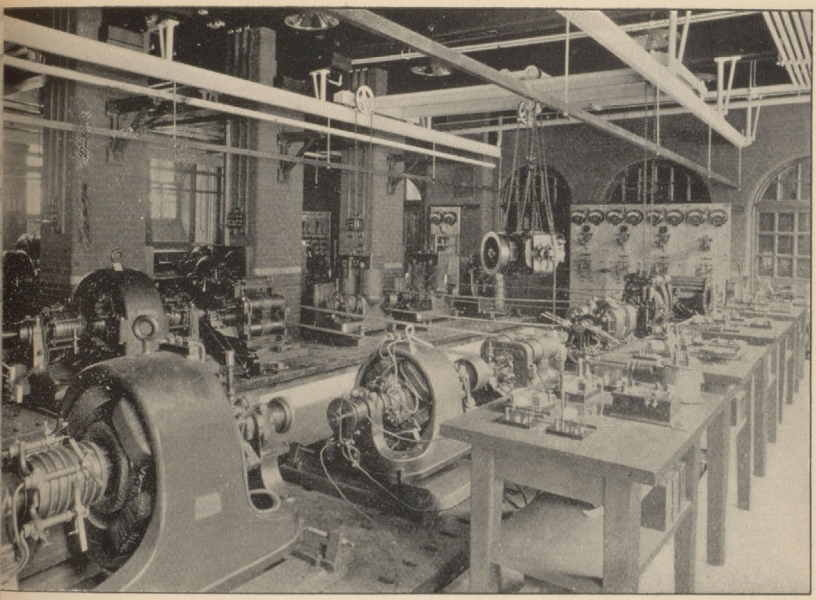
7. Telegraphy and Telephony. Single duplex, quadruplex and multiplex telegraph systems, telephone systems, current generation for telegraph and telephone work, central telegraph and telephone stations. Line construction and testing. Special systems of signalling. One lecture per week, at time to be arranged—Professor Owens. First term.

Graduate Courses.

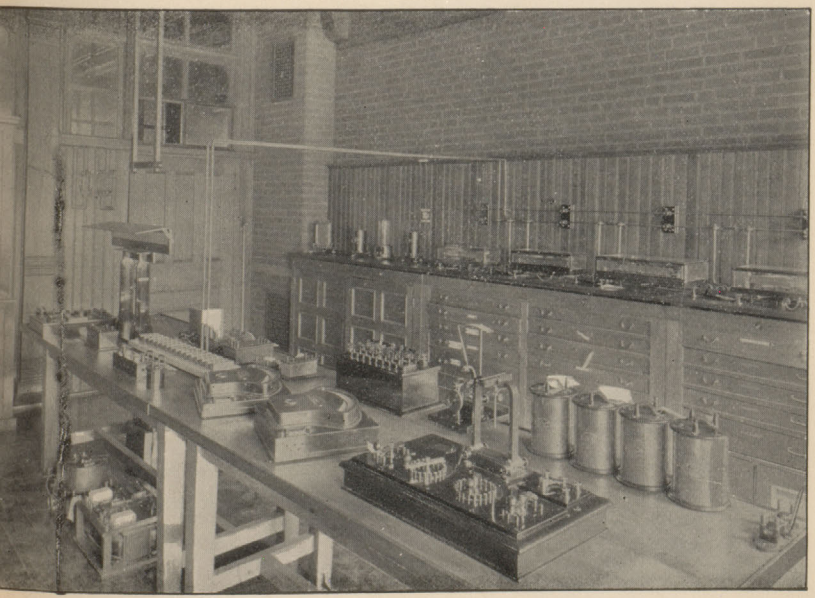
8. Special problems in the theory and practice of alternating current working. Two lectures per week at time to be arranged—Professor Owens. First and Second terms.

9. Special problems in Electric traction. One lecture per week at time to be arranged—Mr. Herdt. First and Second terms.

10. Advanced Laboratory Investigations. Special research work by students having necessary previous training—Professor Owens, Mr. Herdt.



Direct Current Dynamo Laboratory.



Electrical Standardizing Room.

11. Electrical Engineering Seminar. Weekly meetings are held, at which students present carefully prepared papers upon current engineering literature and special topics in connection with their studies or their laboratory work—Professor Owens, Mr. Herdt.

6. English Language and Literature.

PROFESSOR:—C. E. MOYSE.
(Language and Literature).
LECTURER:—J. W. CUNLIFFE.

In view of the importance of accuracy of expression to those engaged in scientific or professional work, a course in English Composition is prescribed for all undergraduates of the First Year, and no student will be allowed to enter the Second Year until he has given satisfactory proof that he is able to write intelligently, clearly, and correctly. In order to make the instruction as practical as possible, short essays on current events and simple literary and historical subjects are required weekly, and will be commented upon in class in illustration of the points advanced in the lectures, which will aim at explaining the elementary principles of composition. (Two hours a week). Students who prove themselves competent may be excused further work in composition, and additional exercises will be required from those who are backward. Satisfactory results must be obtained in the regular essay work, as well as in the examinations, in order to pass in the subject. A short course of lectures will be given introductory to the course of Summer Reading.

Summer Reading.—During the vacation, students entering the Second Year are expected to read certain standard works in literature and fiction, on which an examination will be held in the beginning of October. The marks obtained in this examination will be reckoned in determining the relative standing at the sessional examinations at the end of the Second Year.

The works selected for the vacation of 1901 are :—

Shakspeare's Richard II, ed. Deighton (Macmillan) ;

Scott's Waverley ;

Goldsmith's Vicar of Wakefield ;

Selections from the Spectator, edit. by Deighton (Macmillan).

French Students may substitute for the above the following:

Corneille—Le Cid, Horace.

V. Hugo—Hernani, Ruy Blas.

Balzac—Eugenie Grandet.

Students will also be required to possess some knowledge of the lives of the above French authors.

7. Experimental Physics.

PROFESSORS :—JOHN COX.
E. RUTHERFORD.

LECTURER AND SENIOR DEMONSTRATOR :—H. T. BARNES.

DEMONSTRATORS :—R. K. MCCLUNG.
G. RUPERT DUNCAN.
A. G. GRIER.

The instruction includes a fully illustrated course of Experimental Lectures on the general Principles of Physics (embracing, in the First Year—*The Laws of Energy—Heat, Light and Sound ;* in the Second Year—*Electricity and Magnetism*), accompanied by courses of practical work in the Laboratory, in which the students will perform for themselves experiments, chiefly quantitative, illustrating the subjects treated in the lectures. Opportunity will be given to acquire experience with all the principal instruments used in exact physical and practical measurements.

LABORATORY COURSE.

Three hours per week spent in practical measurements in the Macdonald Physical Laboratory in conjunction with the lecture courses.

Sound.—Velocity of Sound ; determination of rates of vibration of tuning forks ; Resonance ; laws of vibration of strings.

Light.—Photometry ; Laws of Reflection and Refraction ; focal lengths and magnifying powers of mirrors, lenses, telescopes and microscopes ; the sextant ; spectroscope, spectrometer, diffraction grating, optical bench, polariscopes.

Heat.—Construction and calibration of thermometers ; melting and boiling points ; air thermometer ; expansion of solids, liquids and gases ; calorimetry ; pyrometry.

TEXT BOOKS :—

Jones, Sound, Light and Heat; Tory and Pitcher, Laboratory Manual.

Magnetism and Electricity. — Measurements of pole strength and moment of a magnet ; the magnetic field ; methods of deflection, and oscillation ; comparison of moments and determination of the elements of the earth's magnetism ; frictional electricity.

Current Electricity.—A complete course of measurements of current strength, resistance and electromotive force ; calibration of galvanometers ; the electrometer ; comparison of condensers ; electromagnetic induction.

TEXT BOOKS :—

S. P. Thompson, Electricity and Magnetism ; Tory and Pitcher, Laboratory Manual.

Second Year.—Electrical Engineering Students are given an extra laboratory period of 3 hours per week, which allows of a more extended and complete course of experimental work.

Third Year.—Students of Electrical Engineering will continue their work in the Physical Laboratory in the Third Year. The following is a brief outline of the course :—

Magnetic elements and measurements. Use of Variometers. Testing magnetic qualities of iron.

Theory and practice of absolute electrical measurements.

Comparison and use of electrical standards of resistance, E.M.F., self-induction and capacity.

Principles of construction of electrical instruments.

Testing and calibration of ammeters, voltmeters and wattmeters.

Insulation and capacity tests. Electrometers and Ballistic methods.

Construction and treatment of storage cells. Testing for capacity and rate of discharge.

Electric light photometry.

An additional course on telegraph and telephone work is under consideration.

The following are some of the sections in which special provision has been made for advanced physical work:—

Heat.—Thermometry. Comparison and verification of delicate thermometers. Air thermometry. Measurement of high temperatures. Electrical resistance thermometers and pyrometers. Thermo-electric pyrometers.

Calorimetry. Mechanical Equivalent of Heat. Variation of specific heat with temperature. Latent heat of fusion and vaporisation. Heat of solution and combustion. Electrical methods.

Radiation and conduction of heat with special methods and apparatus. Dynamical theory of gases.

Viscosity, Surface Tension. Variation of properties with temperature.

Light.—Photometric standards. Spectro-photometry. Theory of colour vision. Spectroscopy and spectrum photography. Compound prism spectrometers. Six inch and $2\frac{1}{2}$ inch Rowland Gratings. Study of spectra of gases. Fluorescence and anomolous dispersion. Polarimetry. Landolt and other polarimeters. Form of wave surface.

Sound.—Velocity in gases and various media. Absolute determinations of period. Harmonic analysis of sounds. Effects of resonance and interference.

Electricity and Magnetism.—Magnetic properties. Influence of stress and torsion. Influence of temperature. Effects

of hysteresis. Magneto-optics. Other effects of Magnetisation. Diamagnetism.

Electrical standards and absolute measurements. Calibration of electrical instruments.

Insulation and capacity testing. Electrometer and Ballistic methods Temperature variation of resistance and E.M.F. Thermo-electric effects. Electrolysis. Chemistry of primary and secondary batteries. Resistance of Electrolytes, Polarisation.

Electric discharge in gases and high vacua. Dielectric strength. Behaviour of insulators under electric stress. Specific inductive capacity. Electro-magnetic optics. Alternating currents of high frequency and voltage. Electrical waves and oscillations. Discharge of electrification by Röntgen rays, ultra-violet, uranium and thorium radiations.

Professor Cox will give a special course of lectures to advanced and graduate students, on "the relations between optics, electricity and magnetism," following the course given by Prof. Rutherford on "electric oscillations."

N.B.—Students taking a Graduate Course will receive guidance in any advanced Mathematics required in connection with their work.

8. Freehand Drawing, Lettering, Etc.

Assistant Professor:—H. F. Armstrong.

In the *Freehand Course*, the object is to train the hand and eye so that students may readily make sketches from parts of machinery, etc., either as perspective drawings in light and shade, or as preparatory dimensioned sketches from which to make scale drawings.

In the *Lettering Course*, plain block alphabets, round writing and titles will be chiefly dealt with. In this course, also, tinting, tracing, blue printing and simple map drawing will be included.

9. Geology and Mineralogy.

PROFESSORS :—B. J. HARRINGTON.
F. D. ADAMS.
DEMONSTRATOR :—O. E. LEROY.

The courses are arranged as follows :—

Third Year.—

General Geology.—The lectures will embrace a general survey of the whole field of Geology, and will be introduced by a short course on Mineralogy. Especial attention will be devoted to Dynamical Geology and to Historical Geology, including a description of the fauna and flora of the earth during the successive periods of its past history, as well as to the economic aspects of the subject.

The lectures will be illustrated by the extensive collections in the Peter Redpath Museum, as well as by models, maps, sections and lantern slides. There will be an excursion every Saturday until the snow falls, after which the excursion will be replaced by a demonstration in the Museum.

Books of Reference :—Scott, An Introduction to Geology; Dana, Manual of Geology.

Mineralogy.—Lectures and demonstrations illustrated by models and specimens in the Peter Redpath Museum. Among the subjects discussed are : Crystallography; physical properties of minerals dependent upon light, electricity, state of aggregation, etc.; chemical composition, calculation of mineral formulæ, quantivalent ratios, etc.; principles of classification, description of species.

Determinative Mineralogy.—Laboratory practice in blowpipe analysis and its application to the determination of mineral species.

Fourth Year :—

Mineralogy (In continuation of the course in Third Year)—Description of species, particular attention being paid to those which are important as rock constituents and to the economic minerals of Canada.

Petrography.—The modern methods of study employed in Petrography are first described, and the classification and description of rocks is then taken up.

In addition to the lectures, one afternoon a week during the second term will be devoted to special microscopical work in the Petrographical Laboratory.

Text Book:—Harker, Petrology for Students.

Practical Geology and Ore Deposits.—The methods of observing and recording geological facts and carrying out geological surveys are explained and illustrated. Certain geological structures which are of especial importance from the standpoint of Applied Geology are then described in some detail, and the course concludes with a general treatment of the nature and mode of occurrence of Ore Deposits. The course will be illustrated by maps, models, specimens and lantern slides.

Text Books :—Geikie, Outlines of Field Geology ; Kemp, Ore Deposits of the United States; Phillips and Louis, A Treatise on Ore Deposits.

Canadian Geology.—A general description of the Geology and Mineral Resources of the Dominion.

Petrographical Laboratory.—See § XII, 11.

Geological Colloquium.—A discussion each week during second term of some geological topic, references to the literature of which have been given by the Professor in the week preceding. The course is intended to give students some acquaintance with geological literature, as well as a wider knowledge of the great principles which underlie the science.

Physiography.—(Alternative with course on Mining Machinery.)—The first part of the course will consist of a description of Land Forms, and their influence upon human development; while the latter part will be devoted to a study of the physical features of Canada. The course will be illustrated by maps, models, and lantern slides.

NOTE.—Students of the Mining and Chemistry courses take all the Mineralogy of the Third Year. Mining Students take all Courses of the Fourth Year. Chemistry Students take, in addition to the Geology of the Third Year, the Mineralogy of the Fourth Year.

The Petrographical Laboratory is open to Fourth Year Mining Students during the second term.

10. Mathematics and Mathematical Physics.

PROFESSOR:—G. H. CHANDLER.
LECTURER:—R. S. LEA.

The work in this department is conducted from the outset with special reference to the needs of Students of Applied Science. Much time is given to practice in the use of mathematical tables, particular attention being paid to the solution of triangles, the tracing of curves, graphical representation of functions, reduction of observations, etc. Areas, volumes, masses, centres of gravity, moments of inertia, etc., are determined both by calculation and by observation or experiment, and each method is made to supplement or illustrate the other. In this connection, use will be made, in actual laboratory practice, of a large amount of apparatus, such as balances, Atwood's machines, inclined planes, chronographs, rotation apparatus of various kinds, etc. The different methods of approximation and the reduction of results of experiments and observations will also receive due attention.

The courses of study are as follows:—

First Year.

Geometry.—Exercises on Euclid, including Loci, Transversals, etc. Elements of Solid Geometry and of Geometrical Conic Sections.

Algebra.—Miscellaneous theorems and exercises. Complex numbers. Elementary Determinants.

Trigonometry.—Plane and Spherical.

Mechanics.—An elementary course in Kinematics, Kinetics, Statics, and Hydrostatics.

Second Year.

Analytic Geometry.—The Point, Straight Line, Circle, Parabola, Ellipse, and Hyperbola.

Differential and Integral Calculus.—Differentiation of functions of one or more variables. Successive Differentiation. Tangents, etc. Multiple Points. Asymptotes. Curvature. Maxima and Minima. Integration, with applications to Areas, Volumes, Moments of Inertia, etc.

Mechanics.—Kinematics. Kinetics of a Particle. Statics.

Third Year.

Analytic Geometry.—Conjugate diameters. General Equation of the second degree. Elements of Geometry of three Dimensions.

Calculus.—Various applications.

Mechanics.—Friction. Work and Energy. Dynamics of Rotation. Impact. Centres of Pressure, etc.

Classes may also be held for advanced (optional) work in the above or other subjects. Students taking Graduate Courses will receive guidance in any advanced Mathematics required in connection with their work.

Text Books. First Year:—Wilson's Solid Geometry and Conic Sections (Macmillan). Hall & Knight's Elementary Algebra (Macmillan). Murray's Plane and Spherical Trigonometry (Longmans). Blaikie's Dynamics (J. Thin, Edinburgh. Bottomley's Mathematical Tables (Macmillan), Chambers's Mathematical Tables.

Text Books. Second and Third Years :—Wentworth's Analytic Geometry (Ginn & Co.). Chandler's Calculus (E. M. Renouf, Montreal). Wright's Mechanics (Van Nostrand).

11. Mechanical Engineering.

PROFESSOR :—R. J. DURLEY.
ASSISTANT PROFESSOR :—H. M. JAQUAYS.
DEMONSTRATOR :—H. P. ARCHIBALD.

1. Descriptive Mechanism. (Monday, 12.)

Workshop processes in mechanical engineering. Action of cutting tools and machine tools. Manufacture and use of various parts and details of typical machines. Forms of stationary, marine, and locomotive engines and boilers ; types of pumping and ventilating machinery, gas and oil engines, air compressors, and refrigerating machinery.

BOOK OF REFERENCE :—

Lineham's Mechanical Engineering, (Chapman & Hall).

2. Kinematics of Machines. (Wednesday, 11 ; Thursday, 10.)

Definitions. Mechanisms and machines. Kinematic pairing. Velocity and acceleration in mechanisms. Centrodes. Restraint in mechanisms. Analysis of the quadric crank chain, the slider-crank chain, and the double-slider crank chain. Higher Pairing in mechanisms. Cams. Ratchet and click trains. Chamber-crank and chamber-wheel trains. Mechanisms involving non-rigid links. Screw motion and spheric motion in mechanisms.

BOOK OF REFERENCE :—

Kennedy's Mechanics of Machinery, (Macmillan).

3. Dynamics of Machines.

Third Year.—Monday, 10., Wednesday, 9). Elementary dynamics of the steam engine. Diagrams of crank effort. Fluctuation of energy and speed. Flywheels. Friction of journals and pivots. Graphic treatment of friction in mechanisms. Brakes. Dynamics of belt and rope driving. Transmission and absorption dynamometers.

Fourth Year.—(Tuesday, 9, Wednesday, 10. Thursday, 12.) Balancing of double and single acting engines. Dynamics of the connecting rod. Gyrostatic action in machines. Theory of governors. Graphic methods in dynamics. Vibration in machines. Knocking of steam engines.



In the Drawing Rooms.



Carpenter Shop.

4. Machine Design.

Third Year.—(Thursday, 11). Principles of the Strength of Materials as applied to the design of the parts of machines. Fastenings used in machine construction, bolts, screws, keys, cotters, rivets and riveted joints. Journals and bearings. Shafts and couplings.

Fourth Year.—(Monday, 9, Wednesday, 12).—Design of wheel gearing. Belts, ropes, and pulleys. Pipes and pipe joints. Cylinders. Eccentrics, pistons and piston rods, connecting rods, cross-heads and other engine details. Flywheels. Design of valves and valve gears.

TEXT BOOK :—

Unwin's Machine Design (Longmans, 2 Vols.).

Book of Reference :—Low and Bevis' Machine Drawing and Design. (Longmans).

5. Mechanical Drawing and Designing.

Second Year.—(Monday and Thursday, 2).—Elementary principles of mechanical drawing and draftsmanship. Preparation of working drawings of simple machine details. Making dimensioned sketches of machines and their parts. Dimensioning and conventional colouring of drawings. Preparation of tracings.

Third Year (Monday and Thursday, 2).—Designing of simple machine parts. More difficult exercises in mechanical drawing. Engine designing.

Fourth Year (Monday and Thursday, 2).—The complete design of a machine, such as a steam engine, a pump, or a machine tool, is worked out, and the requisite working drawings and tracings are prepared.

6. Mechanical Engineering. (Thursday, 10 ; Friday, 9).

Steam boilers and steam production. Fuel and Combustion. Corrosion and defects of boilers. Boiler Installations.

The Steam Engine ; estimation of power developed under various conditions. The indicator and its diagrams Steam

distribution, and performance of pumping and air-compressing machinery, as shown by the indicator. Economy of steam machinery. Gas and oil engines. Gas producers. Mechanical distribution of power, and losses of power, in power installations and workshops. Air compressors. Fans. Pumping Machinery. Steam engine valves and valve gears. Valve diagrams. Speed regulation in steam engines. Lubrication in steam engines. Steam turbines and engines for special services. Relation between weight and power in steam machinery. Marine engines and ship propulsion. Elements of locomotive engineering. Tractive force in locomotives. Train resistance. Brakes. Refrigerating machinery.

Books of Reference:—Ewing's The Steam Engine (Camb. Univ. Press); Lineham's Mechanical Engineering (Chapman & Hall); Hutton's Mechanical Engineering of Power Plants (Wiley).

7. Thermodynamics. See page 203.

8. Laboratory Instruction. See pages 211, 216.

9. Workshop Practice. See page 218.

Graduate Courses.

The Graduate Courses in Mechanical Engineering comprise experimental research work of the following kinds:—

Tests of the economy and performance of steam engines and boilers, hot air and gas engines, and air compressors. Experiments on the behaviour of superheated steam, on cylinder condensation, on feed heating, and on the value of fuels. Experiments on the properties and relative values of lubricants, on transmission and absorption dynamometers, on the efficiency of transmission machinery and of machine tools. Tests of fans and blowers. Experiments on the flow of air and of steam. Researches on the tempering and welding of various materials, on the properties of alloys and on the action of cutting tools.

12. Meteorology.

Instruction in Meteorological Observations will be given in the Observatory at hours to suit the convenience of the Senior Students.

Certificates will be granted to those Students who pass a satisfactory examination on the construction and use of Meteorological Instruments, and on the general facts of Meteorology.

13. Mining and Metallurgical Engineering.

PROFESSOR :—JOHN BONSALL PORTER.
ASSISTANT PROFESSOR :—F. W. DRAPER.
DEMONSTRATOR IN MINING :—E. ANDREWES, (1900-1901).
FELLOW :—P. W. K. ROBERTSON, (1900-1901).
DEMONSTRATOR IN METALLURGY :—L. O. HOWARD, (1900-1901).

I. The Undergraduate Courses in detail are as follows :—

Mining.

Third Year.—(1) Ore-Dressing. One lecture a week on the theory and practice of ore dressing and coal washing. The forms in which ores occur and the effect of mixture, impurity, etc., on values. The theoretical considerations affecting mineral separations. The general mechanical operations involved.

Ore Dressing Machinery : breakers, rolls, screens, jigs, vanners, tables, washers, buddles, magnetic separators, etc. (25 lectures. This course is continued in the Fourth Year. See Mining 4).

Laboratory, see (2).

(2). Laboratory course for (1). Simple examinations and tests of ores, sands, and gravels, by means of pan, vanning shovel, hand jig, magnet, classifier, etc., giving experience in prospecting and testing without the aid of machinery, (40 hours). Further laboratory in Fourth Year, see (5).

Fourth Year.—(3). Two lectures a week in the First term and three in the Second on the Principles and Practice of

Mining. Prospecting, sinking, drifting, developing, methods of mining, timbering, hauling, hoisting, drainage, lighting, ventilating, etc. Mine accidents and their prevention ; general arrangement of plant, administration, stores and dwellings, etc. (65 lectures—see also 4.)

(4). Two lectures a week in the First term on Ore Dressing, concluded from Third Year, Gold and Silver Milling and Hydraulic Mining. (25 lectures, for laboratory see Mining 6 and 7).

(5). Two lectures a week in Second term on Mining Machinery. Power in Mining. Prime movers, power transmission, machinery for hoisting, pumping, ventilating, etc. (See also Mechanical Engineering, 6). (25 lectures and exercises and 60 hours in the drawing room).

The lectures in this course may be made optional with Physiography (See 9 Geology, p. 187.)

(6). One day a week in the First term in the Ore Dressing Laboratory. Tests of ores, adjustment and use of machines: Horse-power and efficiency determination for different machines under varied conditions. Crushing, sizing, sorting, vanning, jigging, milling, etc. (75 hours. See also 7 and 8).

(7). One day and one-half day a week in the Second term are given to laboratory work. Students may be permitted to elect between the Ore Dressing and Metallurgical Laboratory. This work is individual and the chief part of the time is given to one or two selected investigations.

(8). Mining Colloquium.—One hour a week is given to an informal discussion of the work being done in the department, and of other matters relating to Mining and Ore Dressing.

Metallurgy.

Third Year.—(1). One lecture a week in general Elementary Metallurgy—including introduction, fuels, furnaces and refractory materials, typical metallurgical operations and reactions, and the metallurgy of iron and steel (25 lectures). Physiography (See 9 Geology, p. .)

(2). One lecture a week in First Term on Elementary Metallurgy arranged with especial reference to the needs of students in Mechanical Engineering. (12 lectures).

(3). Fire Assaying Laboratory. Assaying appliances. furnaces, crucibles, scorifiers, cupels, etc. Pulp and button balances, and wet assay apparatus. Sampling and preparation of ores for assay ; preparation and choice of fluxes and reagents, charges, methods, etc. Assays of gold and silver ores. Assays of lead ores. Parting of bullion, and assays of base bullion. Demonstrations and lectures, and 50 hours' laboratory work.

Fourth Year.—(4). One hour a week in the Second Term in Metallurgy of Gold and Silver, etc. Extraction of precious metals from refractory ores, roasting chlorination, cyanide process, special methods, etc. Laboratory as in (9). (12 lectures).

(5). One hour a week on the manufacture and properties of Iron and Steel, etc. Fuels, including calorimetry, pyrometry and furnace efficiencies. With laboratory as in (9), (10) and (11). (25 lectures.)

(6). One hour a week on the Metallurgy of Copper and Lead. Sampling and mixing of ores ; calcination and roasting ; mechanical calciners ; smelting in reverberatory and shaft furnaces ; matte fusions ; Bessemerizing, refining, desilverizing, parting, etc. Wet methods ; etc. Laboratory as in (9). (25 lectures).

(7). One hour a week in Second Term on Metallurgy of zinc, nickel, cobalt, antimony, arsenic, bismuth, mercury, tin, etc. (12 lectures optional.)

(8). One hour a week for one term in Electro Metallurgy of copper, silver, aluminum, nickel, etc. Laboratory as in (9). (12 lectures. (Optional with Hydraulics.)

(9). One half day a week in the First Term. Metallurgical Laboratory. Use of furnaces—roasting, smelting, refining, etc. Pyrometry and tests of refractory materials. Flue gases and flue dust. Electro metallurgy, cyaniding, chlori-

nating, amalgamating, etc. (40 hours in laboratory with demonstration.)

(10). One day and a half each week in the Second Term are given to laboratory work. Students may be permitted to elect between the Ore Dressing and the Metallurgical Laboratories. This work is individual and the chief part of the time is given to one or two special operations.

(11). A short course in Metallurgical laboratory on calorimetry and elementary pyrometry, flue gases, etc., in connection with (5). (24 hours, with additional time in special cases).

This course is for both Mechanical and Mining Students, being the only metallurgical laboratory work for the former.

Optional Courses are offered as above in second term of Fourth Year in Electro Metallurgy, Mineral Chemistry, Electro Chemistry and Hydraulics. One of these several options must be taken. (25 lectures and laboratory work.)

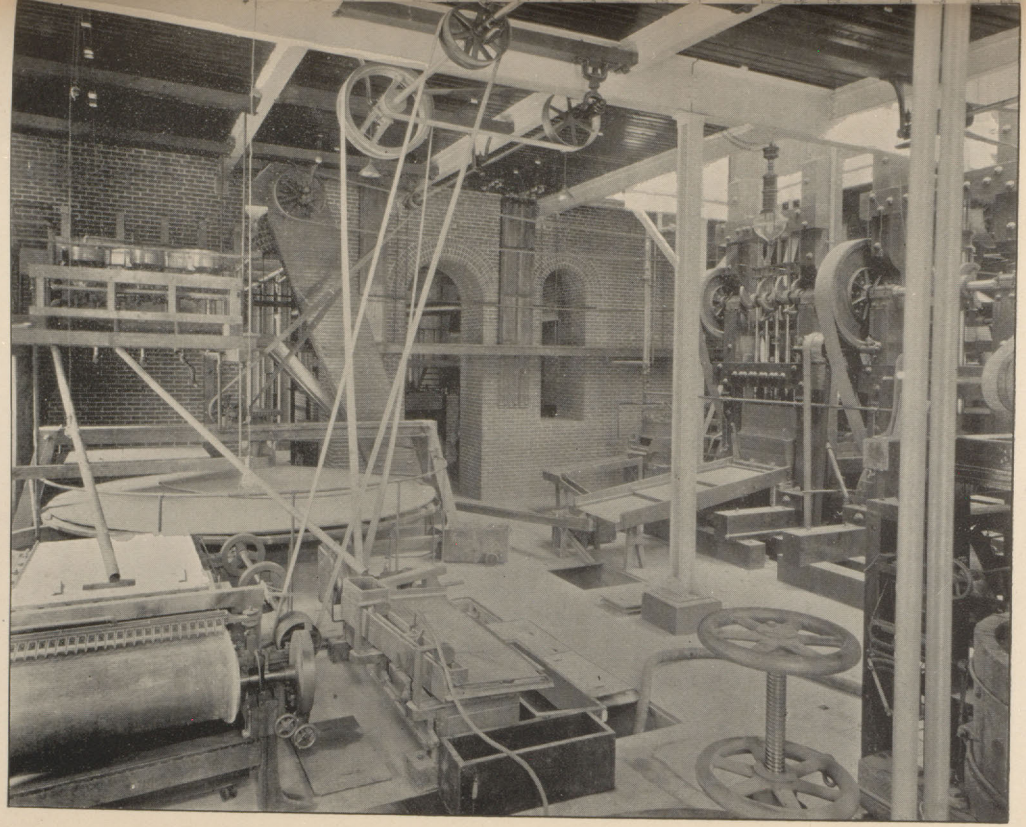
(12). Metallurgical Colloquium.—About one hour per week is given to an informal discussion of the work being done in the department, and of other matters relating to Metallurgy.

II. *Graduate Courses:*—Special courses in advanced work are also offered in both Mining and Metallurgy, and these courses, owing to the unequalled equipment of the new laboratories, as detailed below, can be made exceedingly valuable both theoretically and practically.

TEXT BOOKS :—

No set text-books are used, but students are recommended to freely consult the following works of reference, in addition to the special references given from time to time :—

C. Le Neve Foster's Ore and Stone Mining; H. W. Hughes' Coal Mining; W. B. Kunhard's Ore Dressing in Europe; R. H. Richard's Ore Dressing; T. A. Rickard's Stamp Mining of Gold Ores; H. Louis' Handbook of Gold Milling; T. K. Rose's Metallurgy of Gold; M. Eissler C. Schnabel's



Milling Room in the Mining Department.

Handbook of Metallurgy; E. D. Peters' Modern Methods of Copper Smelting; H. O. Hoffman's Metallurgy of Lead; T. Turner's Metallurgy of Iron; H. M. Howe's Steel; H. H. Campbell's Manufacture and Properties of Structural Steel; F. L. Bosqui's Notes on the Cyanide Process.

III. *Laboratories.*—The admirable laboratories of the University are of peculiar advantage to students in the Mining Course, and enable them not only to become acquainted with the theory of their subject, but to personally investigate its methods on a large scale.

During the first three years of the course, the students do systematic work in the several workshops and laboratories of the other departments. During the last half of the Third and the whole of the Fourth Year they spend a large proportion of their time in the special laboratories for Ore Dressing and Metallurgy. (See § XII). In these latter, the general method is first to conduct before the whole class a limited number of important typical operations in ore dressing and metallurgy, and then to assign to each student certain methods which he must study out in detail, and upon which he must experiment and make written report. In this work he is guided by the professors and demonstrators, and assisted by the other students, each of whom he must in turn assist in his special work. In this way every student acquires detailed knowledge of certain typical operations and a fair general experience of all of the important methods in use.

IV. *Illustrations, Museums, Societies, Etc.*—In addition to a large series of lantern slides, the department owns a collection of about twenty-five hundred photographs and other illustrations, the most important of which are kept in sets and sold at cost price, to such students as wish to retain them. This collection is constantly being enlarged.

The Museums of the new building contain suites of ores, fuels and metallurgical materials, models of mines and furnaces, and specimens of finished products.

The McGill University Mining Society meets fortnightly to read and discuss papers by graduate and student members, and from time to time to hear lectures given by gentlemen eminent in the profession.

V. *Excursions* are made by the classes, from time to time, to such metallurgical works and mining establishments as are within reach.

VI. *Summer School.*—The summer vacation class in Mining instituted in 1897 is now a fixed part of the course. All students of Mining in regular course are required to attend this class in the vacation between the Third and Fourth Years, and students passing from the Second to Third Year are advised to do so also.

The school was held in 1898 at the mines of the Dominion Coal Company in Cape Breton and at the Richardson and Hurricane Gold Mines in Nova Scotia. In 1899, the anthracite mining region of Pennsylvania, and the great iron and steel works near Philadelphia were visited. This year the school is being held in British Columbia, and the itinerary includes excursions to nearly all of the important camps and smelters.

The purpose of the school is to show the students by actual example the relations that obtain between theory and practice in engineering, and to acquaint them sufficiently with the methods and details of practical mining and metallurgical work to enable them to appreciate the technical details of the final year's teaching.

About six weeks are spent by the class in visiting mines and furnaces and studying their operation. The professor of mining and his assistant go with the class, and give daily explanations and demonstrations. The students take notes and sketches, and at the end of the school each student writes up these notes in the form of a report, and these reports are accepted as the Summer Essays required by the Faculty.

VII. *Aid to Students.*—The instruction given during this summer course is free to all mining students, the only expense

to them being the cost of board, lodging, and railway fares, and every effort is made to keep these expenses as low as is practicable.

As some students may have difficulty in finding even this sum in addition to the cost of the regular course, a fund has been provided by Sir William Macdonald, and deserving students who require aid can have money advanced them by applying to the professor of mining.

14. Surveying, Geodesy, and Transportation.

PROFESSOR:—C. H. McLEOD.
LECTURER:—J. G. G. KERRY.

Surveying and Geodesy.

This course is designed to give the student a theoretical and practical training in the methods of land and geodetic surveying, in the field work of engineering operations, and in practical astronomy. The course is divided as follows:—

Second Year.—Chain and angular surveying: the construction, adjustment, use and limitations of the various instruments. Underground surveying. Topography, levelling, contour surveying. Simple curves and setting out work. Descriptions for deeds. General land systems of the Dominion and Provinces.

Third Year.—Construction surveying, including the location of roads, transition curves, setting out work and calculation of quantities. Geodetic, trigonometric and barometric levelling. Topographic and photographic surveying. Hydrographic surveying. Introduction to practical astronomy. Graphical determination of spherical triangles, spherical projections, construction of maps. Mathematical perspective and the perspective of shades and shadows.

In the field the students of the Second and Third Years are required to carry out the following:—(1) A chain survey. (2) A chain and compass survey. (3) A pacing survey. (4) A compass and micrometer survey. (5) A contour survey.

(6) A plane table survey. (7) A survey and location of a line of road with determination of topography and contours and subsequent staking out for construction. (8) A hydrographic survey of a river channel, including measurement of discharge. (9) A survey at night illustrating underground methods. Astronomical observations with sextant and engineer's transit.

All students are required to keep complete field notes, and from them prepare maps, sections and estimates of the work.

The large drawing rooms are furnished with fixed mountings for the various instruments, in order to permit of their use and investigation during the winter months.

Fourth Year.—Practical Astronomy :—the determination of time, latitude, longitude and azimuth. Geodesy :—figure of the earth ; measurements of base lines and triangulation system ; adjustments and reductions of observations.

The field work of the Fourth Year consists in the measurement of a base-line, in triangulations and precision levelling.

The practical work in astronomy (for equipment of observatory see § XII, 6) comprises : (1). Comparisons of clocks and chronometers. (2). Determination of meridian by solar attachment. (3). Meridian, latitude and time by solar and stellar observations with the engineer's transit. (4). Latitude and time by sextant. (5). Time by astronomical transit. (6) Latitude by zenith telescope. (7) Latitude by transit in prime vertical.

Field work is required of all students of the Second and Third Years in the courses of Architecture, Civil and Mining, and of the Fourth Year in the Civil course. The work begins on the first of September, and continues through the entire month. The surveys are made in a place some distance from Montreal. Suitable provision for board and lodging is arranged for at the place selected.

Exercises in the Geodetic laboratory (for equipment see § XII, Art. 6) carried out in the Fourth Year include the fol-

lowing :—(1) Measurement of magnifying power. (2) Determination of vernier errors. (3) Errors of graduation. (4) Measurement of eccentricity of circles. (5) Determination of errors of run of theodolite microscopes. (6) Investigation of the errors of a standard bar. (7) Graduating scales with the dividing engine, and comparison thereof on the comparator. (8) Investigation of the errors of circles on the circular comparator. (9) Determination of the constants of steel tapes. (10) Investigation of the graduation errors of steel tapes on the fifty-foot comparator. (11) Investigation of the errors of aneroid barometers. (12) Investigation of the errors of level tubes, and determination of their scale values. (13) Measurement of the force of gravity with a reversible pendulum.

The equipment of the surveying department comprises the following, in addition to the apparatus of the Observatory and Geodetic Laboratory :—Eleven transit theodolites by various makers, with solar and mining attachments. A photo-theodolite, 8-in. alt-azimuth. Seven dumpy and three wye levels. Hand levels and clinometers. Two precision levels. Five surveyors' compasses. Three prismatic compasses. Pocket compasses. One solar compass. Three marine sextants. Artificial horizons. Four box sextants. Two reflecting circles. Two large plane tables. Four traverse plane tables. Four current meters. Rochon micrometer. Double image micrometer. Field-glasses. Two heliotropes. Several barometers. 300 ft. and 500 ft. steel tapes suitable for base measurements. Steel chains and steel bands. Linen and metallic tapes. Sounding lines. Pickets. Levelling rods. Micrometer targets. Slope rods. Pedometers. Station pointer, pantographs, planimeter, slide rules and minor appliances.

Examinations for Land Surveyors :—Any graduate in the Faculty of Applied Science, in the Department of Civil Engineering and Land Surveying, may have his term of apprenticeship shortened to one year for the profession of Land Surveyor in Quebec or Ontario or for the profession of Dominion Land Surveyor.

TEXT BOOKS :—

Gillespie's Surveying, Johnson's Theory and Practice of Surveying, Shortland's Nautical Surveying, Green's Practical and Spherical Astronomy, Nautical Almanac, Baker's Engineers' Surveying Instruments.

Transportation.

On Common Roads, Railways and Canals.

The lectures will embrace :—

(*a*) A brief historical review of the inception and carrying out of the great Canadian systems of transportation, and a resumé of the laws governing them.

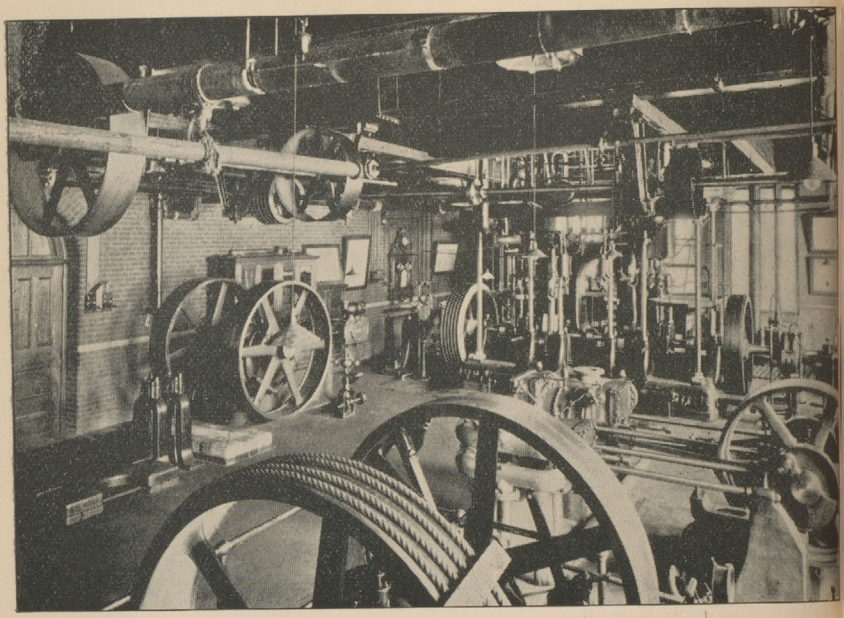
(*b*) Common roads and streets.—Provision made for them in settling up land ; the traffic for which they are suited, and the cost of hauling it over different surfaces ; the materials used in their construction, and the merits and cost of the various systems.

(*c*) Canals and rivers.—The Canadian canal system, the methods and costs of construction and maintenance, the traffic it is designed to carry, and the cost of transportation.

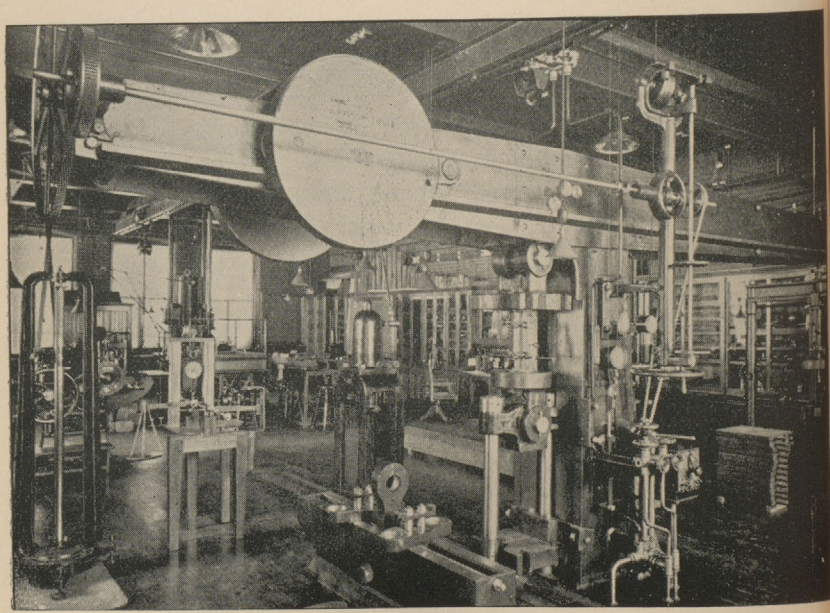
(*d*) Steam railroads.—The traffic they serve and the cost of handling it, the details of location and the influence of physical features and trade possibilities upon it, the cost and design of construction, the duties of the engineer upon such work, the appliances at present in use for safe and speedy handling of trains.

(*e*) Electric roads.—The traffic which they now carry, their location and construction, the reasons for their rapid extension, and their probable future.

The questions of the development and applying of motive power and the various appliances, mechanical and electrical, now in use for these special purposes are taken up in special descriptive lectures in the mechanical and electrical departments.



Thermodynamic Laboratory.



An Engineering Testing Laboratory.

15. Thermodynamics.

LECTURER :—R. J. DURLEY.
DEMONSTRATOR :—H. M, JAQUAYS.

The course in this subject extends over the Third and Fourth Years, and includes the following :—

Third Year—(Monday 11.)—Fundamental laws and equations of Thermodynamics ; their application to gases and to vapours, saturated and superheated. Efficiency of perfect heat engines. Properties of steam, and elementary theory of the steam engine. Elementary theory of gas and hot air engines.

Fourth Year—(Monday, 12 ; Thursday, 11.)—Theory of reversed heat engines and refrigerating machines. Entropy and Entropy-Temperature diagrams. A thermodynamic study of the steam engine, including the behaviour of steam in the cylinder. Economy of steam engines. Influence of size, speed, and rate of expansion. Compound expansion. The steam jacket. The testing of steam engines. More advanced theory of gas, air, and oil engines.

The advanced course is carried out as far as possible in connection with the experimental work of the Thermodynamic Laboratory.

TEXT BOOKS :—

Ewing's Steam Engine (Cambridge Univ. Press) ; Peabody's Tables of Properties of Steam (Wiley).

16. Summer Term Art Classes.

Classes in Drawing, Painting and Modelling, open to both men and women students, will be held in the rooms of the Architectural Department, under the direction of Mr. Henry F. Armstrong, commencing May 1st., and continuing until June 30th.

The rooms will be open on week-days from 10 a.m. to 5 p.m.

Students may pursue their studies in one or more of the subjects continuously every day.

Teaching and criticism will be given daily during the above hours, except on Saturdays.

I. *Freehand Drawing:*—

(*a*) In lead-pencil and in charcoal, for students preparing for, or engaged in, any branch of art work.

(*b*) In lead-pencil, for engineering and other science students.

II. *Oil Painting and Water Colour Painting:*—

III. *Modelling in Clay and Casting in Plaster.*

Fees.

Full Term.—$25.00, whole day; $15 00, *half day.

One month of 4 weeks, commencing any time during the term; $15.00, whole day; $9.00, *half day.

Note.—Any period more than a month, but less than the term, will be charged for at the rate per month.

Fees are payable in advance at the Office of the University Registrar.

17. Special Lectures.

During session 1900-01, the following special lectures were delivered under the auspices of the University and of the Applied Science Graduates' and Mining Societies:—

W. McNab, M.Can.Soc.C.E., on "The removal of the Victoria Bridge and the construction of the Jubilee Bridge."

F. W. Skinner, C.E. (New York), a series of three lectures on "The erection of steel buildings and roof trusses."

I. G. Hedrick, M.Sc., a series of twelve lectures on "Bridge Construction."

J. A. Baylis, M.E., Ch. Eng. Bell Tel. Co. of Canada, a series of six lectures on "Applied Telephony."

H. M. Tory, M.A., a series of six lectures on modern methods of Pyrometry.

R. D. Merschon, M.E., Cons. Eng. Chambly Elect. & Mfg. Co., on "Special problems in long distance electric transmission."

(* Half day means morning *or* afternoons, not interchangeable.)

J. Randolph, Ch. Eng., Sanitary District of Chicago, on "Chicago Drainage Canal."

S. Insull, Pres. Chicago Edison Co., on "Cost of generating a unit of electrical energy."

J. Turnbull, B.Sc., on "Mining in the West."

W. Blakemore, M.E., on "The coal mining of a century."

M. Ogilvie, B.Sc., on "Alaska and the Klondyke" (illustrated with the Bickmore stereopticon views.

F. D. Adams, Ph. D., M.A.Sc., on "Some of the Iron deposits of France and Spain."

J. B. Porter, Ph.D., on "Mining in England."

E. Rutherford, M.Sc., a special course of lectures to advanced and graduate students on "Discharge of electricity through gases."

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§ XII. Laboratories.

In the Laboratories the Student will be instructed in the art of conducting experiments, a sound knowledge of which is daily becoming of increasing importance in professional work.

1. Assaying Laboratory. See Mining and Metallurgical Laboratories.

2. Astronomical Observatory. See Geodetic Laboratory.

3. Cement Laboratory.—The importance of tests of the strength of mortars and cements is very great. The equipment of the Laboratory for the purpose is on a complete plan, including :—

(*a*) Three one-ton tensile testing machines, representing the best English and American practice.

(*b*) One 50-ton hydraulic compressive testing machine.

(*c*) Volumenometers for determining specific gravity and for determining the carbonic acid in the raw material.

(*d*) Faija steaming apparatus for blowing tests.

(*e*) Mechanical hand and power mixers.

(*f*) Apparatus for determining standard consistency.

(*g*) Vicats' and Gilmore's needles for determining set.

(*h*) Weighing hopper, spring and other balances.

(*i*) Gun metal moulds for tension, compression and transverse test pieces, and special moulds for placing mortar into the moulds under a uniform pressure, which, together with the mechanical mixers, enable the personal errors to be eliminated.

(*j*) Sieves of 20, 30, 40, 50, 60, 70, 80, 100, 120 and 180 meshes per lineal inch for determining the fineness.

(*k*) A Boehme hammer, with all accessories.

The laboratory is also fitted with copper-lined cisterns, in which the briquettes may be submerged for any required time, and with capacious slated operating tables, bins and tin boxes for keeping the cement dry for any period.

In the Cement Testing Laboratory, researches have been made on the strength of mortars set under pressure, the effect of frost on natural and Portland cements, the effect of sugar on lime and cement mortars, the strength of lime and cement mortars and of the bricks in brick piers, the effect of fine grinding on the adhesive strength of cements, of using hot water in mixing mortars. Continued tests on the strength of concrete blocks in series are made by Fourth Year Students.

In addition to these researches, a large amount of work is done each year by the Third Year students, in investigating the specific gravity, fineness, setting properties, constancy of volume, and the tensile, comprehensive and transverse strengths of cement, both neat and with the sand.

4. Chemical Laboratories.—The main lecture theatre, extending through two storeys, is entered from the ground floor, and seats nearly 250 students. The lecture-table is supplied with coal-gas, oxygen and hydrogen, electricity, water, vacuum, down-draught, etc., and can be well seen from all parts of the room.

Besides the main lecture theatre there are three smaller class rooms, accommodating from 40 to 60 students each.

The three principal laboratories have each a floor-space of about 2,400 square feet, and together have accommodation for nearly two hundred students working at a time. They are lighted on three sides, and have ample hood space. One is intended for beginners, and the others for more advanced work, particularly in qualitative and quantitative analysis. In connection with each of the main laboratories is a balance-room, equipped with balances by several of the best makers.

Physical Chemistry is provided for in a special laboratory, nearly 30 by 40 feet, lighted from the north, and supplied with electricity, steam, vacuum pumps, etc. The equipment of this department consists of the apparatus necessary for the determination of the specific gravities of solutions, of the depression of freezing point, and the rise of boiling point, of the densities of gases and vapours. There are constant-temperature baths for accurate measurement of solubilities, Kohlrausch's apparatus for determining the electrical conductivity of solutions, and the apparatus necessary for measuring the electromotive forces generated between metals and their solutions, and in voltaic cells generally. There are also calorimeters for measuring the heat effects produced in chemical reactions. There is on the same floor an optical room furnished with refractometers for measuring the refractive indices of solutions, goniometers, polariscopes and spectroscopes. Other forms of apparatus will be added as required for research work.

Immediately adjoining the laboratory of Physical Chemistry is the Photographic department, supplied with two dark rooms, arranged on the maze system, and provided with the necessary appliances for all ordinary photographic work, including an enlarging camera. Apparatus for micro-photography has recently been added to the equipment.

The laboratory for gas analysis has a northern exposure, and is fitted with a large tank to contain water at the temperature of the room, for use in obtaining a constant temperature in the measurement of gases. The tables are arranged for work with mercury, and the laboratory is supplied with the apparatus of Hempel, Dittmar, Orsat, Elliot, and others. It contains also Fleuss, Boltwood, and Töpler pumps for producing high vacua.

The laboratory for electrolytic analysis is supplied with accumulators, thermopile, platinum electrodes, rheostats, ammeters, voltmeters, etc.

Another room has lately been equipped with electric furnaces and other appliances for electro-chemical work.

The organic department comprises a laboratory for preparations and research, a combustion room for analysis, a dark room for polariscope and saccharimeter work, and a lecture room. The laboratory is fitted with all the necessary apparatus for organic research—special hoods for work with poisonous gases, regulating ovens for digesting and drying at various temperatures, filter presses for the extraction of raw materials, and various forms of apparatus for distillation in vacuo. The dark room is equipped with polariscopes and saccharimeters for sugar work. There is a large supply of the necessary organic chemicals, which are supplied free of charge to students engaged in routine or research work in this department.

The laboratory for determinative mineralogy has places for 28 students, and is supplied with abundant material for practical work. It adjoins the lecture-room, in which the lectures in advanced mineralogy are delivered. The mineralogical department is also provided with suitable machinery, run by electricity, for use in the cutting and polishing of minerals and rocks.

The Library contains a valuable collection of the most recent English, French, and German books, and sets of various journals and transactions, including the Berichte der Deutschen Chemischen Gesellschaft, Journal für praktische Chemie, Chemisches Centralblatt, Fresenius' Zeitschrift für Analytische Chemie, Annales de Chemie et de Physique, Journal of the Chemical Society, Chemical News, Mineralogical Magazine, Mineralogische und Petrographische Mittheilungen, etc. The library is open to students under such restrictions as are necessary to prevent damage or loss of books.

The rooms for allied purposes have, as far as possible, been grouped together on the same floor, and there is a hydraulic lift running from the basement to the attic. The offices and principal laboratories and supply rooms are also connected by a system of telephones. The building is practically fire-proof.

5. Electrical Laboratories.—These laboratories contain all principal types of commutating, synchronous, and induction machinery, together with ample facilities for investigating their action. The several Laboratories are the Standardizing Laboratory, the Dynamo Laboratory, the High Tension Testing Room, the Photometer Room, and the Laboratory for special investigation.

(*a*) The Standardizing Laboratory is equipped with four Kelvin Balances for alternating and direct current measurements, best range .025 to 600 amperes; a Kelvin standard electrostatic multicellular voltmeter, Board of Trade pattern; a Weston laboratory standard Ammeter, range with shunts 0 to 1500 amperes; a Weston Laboratory standard Voltmeter range with multipliers, 0 to 3000 volts; special Weston alternating current voltmeters and wattmeters; a special Elliott Potentiometer with standard cells for electromotive force and current measurement; means for measuring high and low resistances, capacity, and di-electric strength of insulating materials, etc., etc. Direct current for the Laboratory is furnished either from the service plant, from a special motor-dynamo, the voltage of which can be continuously varied from 0 to 10 volts,, current capacity 300 amperes; from a 75 K.W. hour storage battery arranged in sections, or from any d.c. machine in the Dynamo Laboratory. Alternating current of several wave shapes and frequencies up to 150 periods per second, and voltages up to 200,000 is available. A special transformer having a current capacity of 800 amperes is used for alternating current ammeter calibration. For alternating current voltmeter calibration, a special regulator is provided, by which voltages from 0 to 200 can be obtained in as small steps as desired.

(*b*) The Dynamo Laboratory. This Laboratory consists of two sections, one devoted to direct current work, and the other to alternating current work. The former method of driving all dynamos

from an overhead line shaft and clutch pulleys has been abandoned and individual motors supplied for each machine. Each motor is provided with suitable series turns and variable shunt, the whole being connected to act with or against the shunt turns, as a compounding or differential effect is desired. The speed of the motors can be varied about 50 per cent. by field rheostat. This gives perfect control of dynamo speed. Current for operating is obtained from six independent sources of supply; one 75 K. W. direct connected unit in the service plant; 3 sets of 25 K. W. hour chloride accumulators and two city supply circuits. All dynamos and motors are mounted on strong testing benches fifteen inches high, with slotted floor, so that any machine can be placed anywhere on the benches and secured in place. Two small travelling cranes over the benches allow machines to be easily shifted. All wiring is done in conduits under the floor, and large sectional switchboards are provided for current distribution about the laboratories. Special testing tables, permanently wired up and fitted with circuit breakers, switches, etc., facilitate the work. Twenty-five commutating machines, generators, motors, boosters, motor-generators, dynamotors, converters, closed and open coil arc machines, varying in capacity from a fraction of a kilowatt to 75 kilowatts, of many different types and makes, are provided for direct current testing. Twelve alternating current machines, including generators, synchronous motors, compensators, and synchronous converters, together with a large amount of stationery and rotary induction apparatus, are provided for alternating current work. Several of the alternating current dynamos are of the inductor type and several different shaped inductors are provided with each machine to give different wave forms. A specially arranged induction motor serves as a frequency changer. The laboratory is also provided with between eighty and ninety voltmeters, ammeters, and wattmeters of standard make and of different ranges; condensers, rheostats, standard resistances, etc.

(*c*) High Tension Testing Room. This room is equipped with four 10 K.W., 200-50,000 volt. transformers with switch board and suitable controlling devices. The voltage can be varied in small steps by means of a Stillwell regulator inserted in the primary and by varying the field of the dynamo supplying current. A Kelvin direct reading electrostatic voltmeter, range 100-100,000 volts., gives a means of measuring high voltages directly.

(*d*) The Photometer Room. This room is equipped with standard photometric apparatus for candle power measurements on arc and incandescent lamps.

(*e*) The Laboratory for special investigation adjoins the Standardizing Laboratory. Meter and transformer testing are also done in this room.

6. Geodetic Laboratory.—The equipment of this laboratory consists of :—

(1) Linear instruments.
- (*a*) A Rogers comparator and standard bar for investigating standards of length.
- (*b*) A fifty-foot standard and comparator for standardizing steel bands, chains, tapes, rods, etc.
- (*c*) A Whitworth end-measuring machine and set of standards.
- (*d*) A Munro-Rogers linear dividing engine.

(2) Circular instruments.
- (*a*) A Rogers' circular comparator and dividing engine.
- (*b*) Two level triers.

(3) Time :—

(*a*) An astronomical clock and clock circuit in connection with the observatory clocks.
(*b*) Chronometers running on mean and sidereal time.
(*c*) Chronograph.

(4) Gravity.—A portable Bessel's reversible pendulum apparatus with special pendulum clock and telescopic apparatus for observing coincidences of beats.

(5) A water gauge apparatus for testing aneroid barometers.

(6) Magnetic instruments :—

(*a*) A Kew dip circle.
(*b*) A Kew filar magnetometer.

The laboratory is constructed with double walls and enclosed air spaces, and has a special heating apparatus, so that the temperature within may be brought to, and held at, any desired degree.

The ordinary course of instruction in this laboratory is described in § XI., Art. 14.

Astronomical Observatory.—The observatory equipment for the purpose of instruction in practical astronomy consists of :—

1. A Bamberg prismatic transit with zenith attachment.
2. Two astronomical transits for meridian observations. Collimating telescopes.
3. A Troughton & Simms' zenith telescope.
4. An astronomical transit in the prime vertical.
5. Sidereal and mean time clocks and chronometers.
6. Chronograph and electrical circuits by which observations and clock comparisons within or without the observatory may be made.

7. Hydraulic Laboratory.—Here the student will study practically the flow of water through orifices of various forms and sizes, through submerged openings, over weirs, through pipes, mouthpieces, etc.

The equipment of this laboratory includes :—

(*a*) A large Experimental Tank, 30 ft. in height and 25 sq. ft. in sectional area. With this tank experiments are conducted on the flow of water through orifices either free or submerged. By a simple arrangement the orifices can be rapidly interchanged without lowering the head, and with the loss of only about one pint of water. The indicating and measuring arrangements connected with the tank are exceedingly delicate and accurate, all times being automatically recorded by an electric chronograph, and valuable results have already been obtained. By means of a special connection with the city water-supply, the available head of water may be increased up to 280 ft.

(*b*) An Impact Machine, which renders it possible to measure the force with which water flowing through an orifice, nozzle, or pipe, strikes any given surface, and also the impulsive effect of the water entering the buckets of hydraulic motors.

(*c*) A Rife's Hydraulic Ram.

(*d*) A Jet Measurer specially designed for investigating the dimensions of the jet produced in the phenomena known as "the inversion

of the vein." With this apparatus it is possible to determine, within .001 inch, the dimensions of a jet in any plane and at any point of the path.

(*e*) Numerous orifices, nozzles, and mouth-pieces.

(*f*) A specially designed stand-pipe, with all the necessary connections for pipes of various sizes for investigations on frictional resistance. The pressures are measured by recording gauges, etc.

(*g*) A flume about 35 feet in length, by 5 ft. in width by 3 ft. 6 ins. in depth.

(*h*) Weirs up to 5 ft. in width, and with a depth of water over the sill varying from nil to 8 inches. A weir-depthing machine, with three adjustable heads, gives the surface depth of the stream at any three points in a transverse section. The velocity of the stream is also determined by means of a double Pitôt tube.

(*i*) Numerous hydraulic pressure-gauges.

(*j*) A mercury column 60 feet in height.

(*k*) Gauge-testing apparatus.

(*l*) Various rotary, and piston meters, and a Venturi meter.

(*m*) Apparatus for illustrating vortex motion.

(*n*) Apparatus for illustrating vortex ring motion, and for determining the critical velocity of water flowing through pipes.

(*o*) Five specially built gauging tanks with suitable indicators, each having a capacity of 800 cubic feet. Also other portable tanks.

(*p*) Transmission and absorption dynamometers.

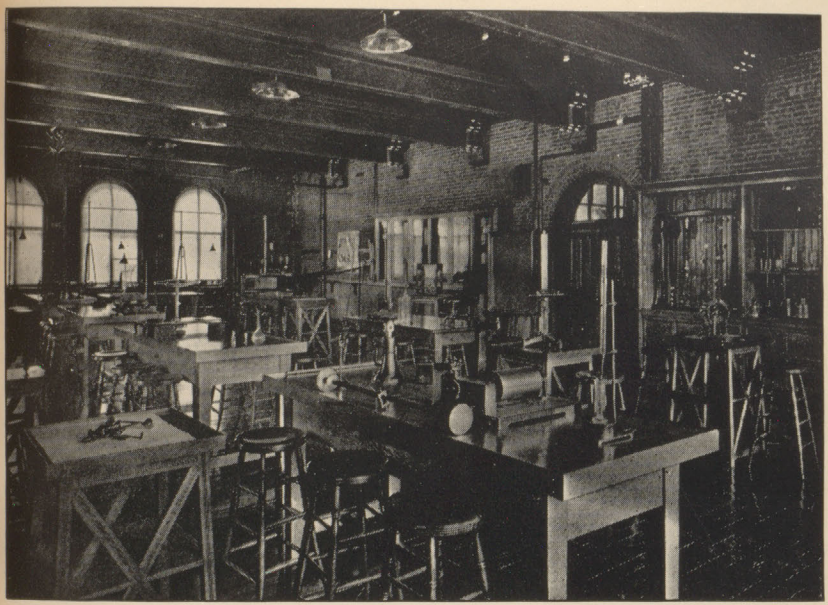
(*q*) An experimental centrifugal pump, which can be tested with varying heights of suction and discharge.

(*r*) An inward-flow turbine, a new American turbine, a Pelton, and other motors and turbines.

(*s*) Standard gallon and litre measures with glass strikes. This Laboratory is also provided with a set of pumps, specially designed for experimental work and research. They are adapted to work under all pressures up to 120 lbs. per sq. in., and at all speeds up to the highest found practicable. The set is composed of three vertical single acting plunger pumps of 7 in. diam., 18 in. stroke, driven from one shaft. They have two interchangeable valve chests, and it is arranged that both the valves and their seats may be removed and replaced by others. The pumps are also provided with a double set of continuous recording indicators designed in the laboratory and having electrical connections. With these, an accurate record of the suction and discharge valves may be obtained at any given time, all fluctuations of speed, pressure, etc., being automatically recorded.

8. Mathematics and Dynamics, Laboratory of.—The equipment of this Laboratory includes instruments for the measurement of distance (scales, micrometers, cathetometer), of area (planimeters), of volume (flasks, graduated vessels, etc.), of time (clocks, chronographs), of mass (beam and spring balances); it is also provided with a mechanical integrator, specific gravity balances, Atwood and Morin machines for experiments on the Laws of Motion, inclined planes, a variety of rotation apparatus (gyroscope, Maxwell's dynamical top, torsion balance, pendulums, etc.), air-pumps, thermometers, barometers, etc.

The Mathematical Laboratory is used chiefly in connection with the course in Dynamics. Lectures are given on the fundamental and derived units of the Science, as well as on the Laws of Motion, and deduction from the same. When the students have in this way been made acquainted with some of the ideas of the subject, they are admitted to the laboratory, where experiments of a progressive character are assigned to them. These experiments are in all cases quantitative, and embrace the measurement of mass by means of accurate physical balances, of intervals of time by clock and chronograph, and of distance by means of scales, screw micrometers, etc. They then proceed to the measurement of areas, volumes, velocities, accelera-



Mathematical Laboratory.



Petrographical Laboratory.

tions, forces, specific gravities, friction, and also to pendulum experiments, etc. The equipment of the laboratory for this work is very complete, embracing as it does the ordinary instruments for the purpose to be found in most physical laboratories, together with a variety of apparatus specially constructed for this laboratory. Particular attention is given in the lectures to the principles of observing in general, the sources of error, etc.; the whole course having reference to the subsequent work of the student in the Physical and Engineering Laboratories.

9. Mechanical Laboratory.—The equipment of this Laboratory includes :—A belt-testing machine, capable of taking a six-inch belt at 15 feet centres. The machine includes a special hydraulic dynamometer, and a friction brake, and will absorb 15 H. P. A Thurston railway-pattern oil-tester, fitted with water cooling and heating apparatus for varying the temperature of the brasses as desired. An Engler standard viscosimeter, and other necessary apparatus for the physical testing of lubricants. A specially designed hydraulic support and fittings for carrying out experiments on the action of cutting tools in the lathe. Apparatus for experiments on the efficiency of pulleys and hoisting appliances.

This Laboratory is used in connection with the courses in Mechanical Engineering subjects.

10. Mining and Metallurgical Laboratories.—The Macdonald Chemistry and Mining Building was completed in 1898, and the Mining and Metallurgical Laboratories, situated in the lower part of the structure, are now fully equipped.

These laboratories, with the lecture rooms, the professor's offices, and rooms for apparatus, supplies and fuel, are very conveniently arranged individually and with regard to one another, and occupy the lower part of the main building and the whole of both wings. The total floor space covered is approximately 17,000 square feet, divided as follows :—

Mining and Ore-Dressing Laboratory, or Milling Room, 4,000 square feet; Metallurgical Laboratory, or Furnace Room, 3,500 square feet; Assay Laboratory, 2,500 square feet; Wet Assaying Rooms, 500 square feet; Technical Lecture Room, 750 square feet; Library and Drawing Room, 750 square feet; Special laboratories, Offices, Stores, and so forth, 5,000 square feet.

The two rooms first mentioned are of great size, and are the chief laboratories of the department. In these it is possible to take any ores of gold, silver, copper, or lead in the condition in which they come from the mines, and to treat them from beginning to end, precisely as they are treated in the ore-dressing works and smelting plants of the mineral regions. They may therefore be considered as constituting a small working plant for the actual production of metals. They differ from commercial plants, however, in that an ordinary ore-dressing establishment is designed to treat the ores of only one district or even of one mine. The University laboratories must of course be adapted to the treatment of any ores found or likely to be found in the Dominion, and therefore contain a more varied assortment even of commercial apparatus than will ever be found in one works. They furthermore are provided with a number of machines especially designed for experimental work in demonstrating and investigating the theoretical side of the subject.

The two main laboratories are very large and well lighted, and are each 20 ft. high in the clear. Close to them are the rooms for storage of ores, fuel, etc., etc., from which clear level passages lead to the elevators and connect with the crushers and furnaces. There are also several overhead hoists and travellers, and a large number of trucks, wagons and portable tanks for carrying wet, dry, or molten material from place to place. Material can, therefore, be moved

from one point to another with the greatest ease, and pieces of apparatus can be readily taken apart, and, if necessary, moved by the same means.

It is not the purpose of the University to use these laboratories for commercial work, although they are quite large enough for such service. They are to be used solely for educational work and for investigation; and, owing to their thoroughly practical nature, instruction given is of immensely greater value to the students than could be the case if the work were done only in miniature. At the same time, the investigations made by such means are of greater use to the mining and metallurgical community, as they are carried out in all respects under working conditions, and are therefore free from the disturbing causes likely to interfere with attempts to reproduce commercial processes on a small scale.

The Milling-Room is equipped with a complete working plant, capable of treating, if necessary, 10 to 20 tons of ore per day, the chief pieces of apparatus being:—Rock Crushers of three kinds, Blake, Dodge and Comet, to break the large pieces of ore to small size; Stamp mills of 600 and 950 lbs., respectively, for the crushing and amalgamating of gold ores; Huntingdon centrifugal roller mill, for crushing and amalgamating; high speed steel rolls for fine crushing; Gates' grinder for preparing samples, and a ball mill for extremely fine grinding.

Following these there is a Bridgman automatic sampler and a series of trommels and hand and power shaking screens for sizing the crushed ores; two specially designed jigs of two and four compartments, with adjustable eccentric, cam and slide mechanisms, and several small hand and power jigs for concentrating minerals by gravity; revolving, bumping and stationary glass tables; Frue vanner, Wilfley table, etc., for separating valuable minerals contained in fine sands and crushed rock; plates, pans, and barrels for amalgamating gold and silver ores; spitzkasten, spitzlütte, magnetic separators, coal washers, dolly tubs, and various other special pieces of ore-dressing apparatus.

The machinery above mentioned is not in miniature; but is of the size in use in working establishments. It is, however, so made as to permit of adjustment for experimental work and is so arranged that each piece can be worked by itself, and taken apart and cleaned up; and such of the larger pieces as cannot be used for small quantities of material are duplicated in miniature by working models for handling small lots of material. An hydraulic lift and a complete series of belt and bucket elevators, feeders, samplers, etc., are provided for use in heavy, continuous work. The laboratory, while thus adapted to illustrate work on a comparatively large scale, is designed for experiment on as small a scale as is compatible with accuracy of result The motive power used is electricity, generated in the University power and light station, and utilized through a number of electric motors conveniently placed near the machines to be operated The department is equipped with the most approved apparatus for electrical measurements, and is thus able to make frequent and accurate determinations of the amount of power used by each machine, and for any especial condition of use.

The Furnace Room is fitted with a water-jacket blast-furnace, 24 ins. inside diameter, for smelting lead and copper, with the necessary blast apparatus; also with a hand reverberatory furnace, a Bruckner roasting furnace, an English cupellation-furnace, and several crucible furnaces.

It has also a lead-lined chlorination barrel for high pressures, with filter press, air pump, etc., and several small vats, barrels, etc., for the chlorination and leaching of silver and other ores; also both large and small cyanide extraction plants for gold ores.

In addition to the above, the laboratory has a specially designed low voltage motor dynamo for electro-metallurgical work, with the necessary accompaniment of tanks, vats and a good storage battery. It also has an electric furnace of considerable power and of wide applicability.

The Assaying Laboratory is equipped with a large soft coal assay furnace, and with a complete set of small muffle and crucible furnaces, some of each being arranged for gas and gasoline, and others for coke and charcoal. Connected with this are smaller rooms, one provided with pulp, bullion and assay balances, and others for parting and the other chemical work involved in the main operations.

In other rooms of the department there have been installed some very excellent apparatus for metallurgical research, including some admirable electric pyrometers of both the Le Chatellier and Callendar type ; a powerful hydraulic press for subjecting metal to extreme stress for long periods of time; and a very complete microscopic and photo-microscopic equipment. There are also a calorimeter room with Mahler and other instruments, and a well-fitted analytic laboratory.

The courses of instruction in these laboratories are described in §XI, 13.

11. Petrographical Laboratory —The Petrographical Laboratory, containing the chief rock collection of the University, is situated in the Chemistry and Mining building. It is arranged for the use of Students in the Mining Course as well as for those desiring to take advanced work, and is provided with a number of petrographical microscopes by Seibert, Crouch, and Fuess, as well as with models, sets of thin sections, electro-magnets, heavy solutions, etc., for petrographical work.

A collection of typical rocks has been especially prepared for the use of students, and a complete equipment for cutting, grinding, and polishing rocks, has been installed, which runs by electric power and gives excellent facilities for the preparation of thin sections for microscopic use.

For advanced work and petrographical investigation Dr. Adams' extensive private collection of rocks and thin sections is available for purposes of study and comparison..

12. Physical Laboratory.—The equipment of the Macdonald Laboratories comprises: (1) apparatus for illustrating lectures; (2) simple forms of the principal instruments for use by the students in practical work; (3) the most recent types of all the important instruments for exact measurement, to be used in connection with special work and research.

The basement contains the cellars, furnaces, and janitor's department at the west end of the building. The machine room—containing a small gas engine and dynamo, which are fitted for testing, but can also be used for light and power, a motor-alternator and a motor-dynamo—is situated at the extreme western corner of the basement so as to be as far removed as possible from the delicate magnetic and electrical instruments. Here is also the switch-board for controlling the various circuits for supplying direct or alternating current to different parts of the building. The Accumulator Room contains a few large storage cells, charged by the motor-dynamo, which are fitted with a suitable series-parallel arrangement, and with rheostats for obtaining and controlling large currents up to 4,000 amperes for testing ammeters and low resistances, etc.

The Magnetic Laboratory contains magnetic instruments and variometers of different patterns, and also a duplicate of the B. A. Electro-dynamometer, which has been completely remodelled and set up with great care for absolute measurement of current. The Laboratory, on the opposite side of the basement, contains a very fine Lorenz apparatus for the absolute measurement of resistance, con-

structed under the supervision of Prof. Viriamu Jones. It also contains a set of Ewing Seismographs and a pair of Darwin Recording Mirrors for measuring small movements of the soil.

There is a constant Temperature Room, surrounded by double walls, which contains a Standard Rieffler Clock, and is fitted for comparator work.

The Ground Floor contains at the western corner a small machine shop, fitted with a milling machine and suitable lathes and tools driven by electric motors, and such appliances as are required for the making and repairing of the instruments, for which the services of a mechanical assistant are retained. There is also a store room for glass, chemicals, and cleaning materials, and extensive lockers and lavatories for the use of the students.

The Main Electrical Laboratory is a room 60 feet by 40, and is fitted with a number of brick piers, which come up through the floor, and rest on independent foundations, in addition to the usual slate shelves round the walls. This room contains a large number of electrometers, galvanometers, potentiometers and other testing instruments of various patterns, and adapted for different uses. It connects with a smaller room at the side, in which are kept the resistance boxes and standards, and also the capacity standards. A small research laboratory adjoining the electrical laboratory, is fitted up for the study of electrical discharge in high vacua, and for work with Röntgen and uranium radiation, and with ultra-violet light.

The First Floor contains the Main Lecture Theatre, with seats for about 250 students. The lecture table is supported on separate piers, which are independent of the floor. Complete arrangements are provided for optical projection and illustration. The Preparation Room in the rear contains many of the larger pieces of lecture apparatus, but the majority of the instruments, when not in use, are kept in suitable cases in the adjoining apparatus room. On the same floor there is the Heat Laboratory, devoted to advanced work in Thermometry, Pyrometry and Calorimetry, and also to such electrical work as involves the use of thermostats and the measurement of the effects of temperature. There are also two smaller rooms for Professors and Demonstrators.

The Second Floor is partly occupied by the upper half of the Lecture Theatre. There is also an Examination Room for paper work, a Mathematical Lecture Room, with a special apparatus room devoted to apparatus for illustrating Mathematical Physics, and a special Physical Library chiefly devoted to reference books and periodicals relating to Physics. A store room, lavatories, and Professors' room occupy the remainder of the flat.

The Third Floor contains the Elementary Laboratory, a room 60 feet square, devoted to elementary practical work in Heat, Light, and Sound, and Electricity and Magnetism. There is a Demonstrator's Room adjoining, and an optical annex devoted to experiments with lenses, galvanometers and polarimeters. Also a series of smaller optical rooms, including a photometric room, specially fitted for Arc photometry, and a dark room for photographic work. Communication between the different flats is facilitated by means of a hydraulic elevator. The building is lighted throughout by electricity and heated by hot water. The walls are of pressed brick, and the floors of hard maple. There is a ventilating system, consisting of Tobin tubes and suitable exit flues, assisted by a fan in the roof.

13. Testing Laboratories.—The principal experiments carried out in these will relate to the elasticity and strength of materials, friction, the theory of structures, the accuracy of springs, gauges, dynamometers, etc. The equipment of this laboratory includes:—

(*a*) A Wicksteed 100-ton and an Emery 50-ton machine for testing the tensile, compressive and transverse strength of the several

materials of construction. To the former has been added a specially designed arrangement, by which the transverse strength of girders and beams up to 26 ft. in length can be determined. These machines are provided with the holders required for the various kinds of tests, and new holders have also been specially designed and made in the laboratory for investigating the tensile and shearing strength of timber for wire rope and belt tests, etc. Numerous attachments have also been made to the machines, which have already increased their efficiency. The most recent addition is a double-bearing support for transverse testing.

(*b*) An Impact Machine, with a drop of 30 ft., and with gearing which will enable specimens to be rotated at any required speed, and the blows to be repeated at any required intervals. By means of a revolving drum, a continuous and accurate record of the deflections of the specimens under the blows can be obtained.

(*c*) An Unwin Torsion Machine with a specially designed angle-measurer, by which the amount of the torsion can be measured with extreme accuracy.

(*d*) An Accumulator, furnishing a pressure of 3,600 lbs. per square inch, which is transmitted to the several testing machines, and ensures a perfectly steady application of stress, an impossibility when any form of pump is substituted for an Accumulator.

(*e*) A Blake and a Worthington Steam Pump, designed to work against a pressure of 3,600 lbs. per square inch. The Accumulator may be actuated by either of the pumps, and, if at any time it is desirable to do so, either of the pumps may be employed to actuate the testing machine direct. When in operation the work of the pump and the accumulator is automatic.

(*f*) Extensometers of the Ewing, Unwin, Martens, Marshall and other types. The extensometer equipment has recently been enriched by seven sets of improved extensometer apparatus designed and made in the laboratory.

(*g*) Portable cathetometers, and also a large cathetometer specially designed and constructed for the determination of the extensions, compressions and deflections of the specimens under stress in the testing machines.

(*h*) An automatic electric motor pump for actuating the Accumulator; also various electric motors for working the several machines.

(*i*) A drying oven for beams up to 26 ft. in length. The hot air in this oven is kept in circulation by means of a fan driven by an electric motor.

(*j*) Numerous gauges, amongst which may be specially noticed an Emery Pressure Gauge, graduated in single lbs. up to 2,500 lbs. per square inch. All of the testing machines are on the same pressure circuit, and are connected with the Emery gauge and also other standard gauges, including recording gauges. This arrangement provides a practically perfect means of checking the accuracy of the testing.

(*k*) Special apparatus and recording gauge for the testing of hose, etc.

(*l*) Dynamometers for measuring the strength of textile fabrics, the holding power of nails, etc.

(*m*) Apparatus for determining the elasticity of long wires.

(*n*) Apparatus for determining the hardness of materials of construction.

(*o*) Zeiss and other Microscopes.

(*p*) Delicate chemical and other Balances. A very important part of the equpment is the Oertling Balance, capable of indicating with extreme accuracy weights of from .00001 lb. up to 125 lbs.

(*q*) Micrometers of all kinds.

During the past year the laboratory has been enriched by the addition of a number of transverse, tension, compression and torsion

testing machines, so that ample opportunity is now provided for individual work on the part of every student.

The new apparatus comprises :—A transverse bending machine, which is adapted for loads up to 3000 lbs., and for beams of 10 ft. span. Small beam testing machines, which are used to illustrate the laws of the bending of beams, both when the ends are free and when they are fixed. Two small tension machines, in which experiments are made on metals, the strains being within the elastic limit. An elasticity equipment, which has been installed in one of the vertical shafts of the Engineering Building, and is adapted for experiments on wires 60 ft. in length. A lever machine for experiments on alternate twisting. A testing machine for breaking tests on wires. A powerful hydraulic press for compression tests on metals, cements, stone, and similar materials. Apparatus for measuring strains in compression experiments of great delicacy, etc.

14. Thermodynamic Laboratory.—The Thermodynamic Laboratory is furnished with an experimental steam engine of 120 I. H. P., specially designed for investigating the behaviour of steam under various conditions; the cylinders are 6 1-2 inches, 9 inches, 13 inches, and 18 inches in diameter, and the stroke of all the pistons is 15 inches. The cylinders can be so connected as to allow of working as a simple, compound, triple, or quadruple expansion engine, either condensing or non-condensing, and with any desired rate of expansion. The jackets are so fitted as to permit of measuring independently the water condensed in the cover, barrel, or bottom jacket of each cylinder, and the engine can be worked with any desired initial pressure up to 200 lbs. per square inch. The measurements of heat are made by means of large tanks, which receive the cooling water and the condensed steam. There is an independent surface condenser and air pump. Two hydraulic absorption brakes and an alternative friction brake serve to measure the mechanical power developed.

The Laboratory also contains the following machinery:—

A Robb automatic cut-off engine, having a cylinder 10 1-2 inches in diameter by 12 inches stroke. This engine is specially fitted up for the measurement of cylinder temperatures, and can be run at speeds up to 300 revolutions per minute.

An automatic high speed engine by Macintosh & Seymour, having a cylinder 12 inches diameter by 12 1-2 inches stroke.

A hot-air engine built by Woodbury Merrill of Ticonderoga.

An Atkinson "Cycle" Gas engine, having a cylinder 7 inches diameter by 8 inches stroke, and indicating 6 H. P.

A "Dake" steam engine of 4 H. P.

A two stage air compressor taking 40 H. P., and having cylinders 10 inches and 17 inches in diameter, by 15 inches stroke. This compressor delivers its air into reservoirs placed beneath the floor of the machine shop, and is provided with an intercooler whose capacity can be varied as desired.

The smaller apparatus belonging to the laboratory includes the necessary equipment of weighing machines, brakes, calorimeters, thermometers, gauges, pyrometers, fuel testers, indicators, planimeters, and a Moscrop recorder.

The boiler installation of the Engineering Building supplies steam for heating and power purposes, and is so arranged as to be available for experimental work in connection with the Thermodynamic Laboratory. It comprises boilers of five distinct types as follows:—

One Cornish boiler, for heating service, rated at 50 H. P.

One locomotive boiler, Belpaire type, 100 H. P.

One internally fired tubular boiler, 120 H. P.

Two Babcock-Wilcox water-tube boilers, each 60 H. P.

One Yarrow water-tube boiler, fitted in a closed stokehold, for working under forced draft, rated at 150 H. P.

These boilers are provided with the necessary tanks, weighing-machines and apparatus for carrying out evaporative tests.

During the session 1900-01, the following experimental work has been carried out in connection with the Thermodynamic Laboratory:

A series of progressive evaporative trials of the locomotive boiler.

A series of gas-engine trials.

Progressive trials of the two-stage air-compressor at various speeds.

A series of trials of the large experimental engine, comparing its performance when running as a simple and as a compound engine, both jacketed and unjacketed, with the same total rate of expansion.

A further series of tests, comparing the performance of the same engine as a simple and as a triple expansion engine with the same total rate of expansion.

Experiments to determine the coefficient of discharge for air passing through orifices in thin plates under small differences of pressure.

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§ XIII. Museums.

The Peter Redpath Museum.—The Peter Redpath Museum contains large and valuable collections in Botany, Zoology, Mineralogy and Geology, arranged in such a manner as to facilitate the work in these departments. Students have access to this Museum, in connection with their attendance on the classes in Arts in the subjects above named, and also by tickets which can be obtained on application.

Engineering Museum.—This Museum occupies the third storey of the Engineering Building, and amongst other apparatus, contains the Reuleaux collection of kinematic models, presented by Sir William Macdonald, and pronounced by Professor Reuleaux to be the finest and most complete collection in America.

Architectural Equipment.—The Architectural Department has been endowed by Sir Wm. Macdonald, the founder, with a very thorough equipment for practical purposes of instruction; this is at present in course of provision and completion. In the Museum of the Engineering Building is included a large collection of casts both of architectural detail and ornament (illustrative of the historical development of the various styles) and of architectural and figure sculpture. The freehand-drawing classes for architectural students, as also the classes of architectural drawing and design, are conducted in this portion of the building.

A special architectural department has been added to the University Library; text-books and other works have been added to the Faculty Library. A collection of photographs is placed in the architectural room for the use of students in the class of design, in addition to a select reference library of illustrated works. Diagrams and lantern slides are used in illustration of the historical courses; models and specimens of materials and fittings in those on Building Construction, Sanitation, etc.

§ XIV. Workshops and Workshop Instruction.

The Workshops, erected on the Thomas Workman Endowment, have a total floor area of more than 25,000 square feet. The course in shopwork is intended to afford some preparation for that study of workshop practice on a commercial scale which every engineer has to carry out for himself. With this end in view, the student works in the various shops of the Department, and completes

in each a series of practical exercises. He thus obtains some knowledge of the nature and properties of the various materials he employs; he becomes familiar with the use and care of the more important hand and machine tools; and he acquires some manual skill.

Throughout the course, advanced students are as far as possible entrusted with the construction and erection of machinery and apparatus which afterwards forms part of the equipment of the Department. An air-compressor, a boring bar, a belt-testing machine, and a duplex feed pump, are examples of the work which has been done in this manner. Such students are also encouraged to see and assist in the repairs required by the engines, boilers and machine tools in the Engineering Building.

Equipment.—The Carpenter's Shop and the Pattern Shop contain thirty-eight carpenters' and pattern-makers' benches complete with the necessary sets of hand tools, twenty-two wood-turning lathes with their turning tools, a large pattern-makers' lathe for faceplate work, one circular saw bench, a jig saw, a band saw, two wood trimmers, a surface planer, a thickness planer, a mortising machine, a saw-sharpener, and one universal wood-working machine.

The Smith Shop is provided with sixteen Sturtevant Forges which are power-driven and are connected to an exhaust fan. There is a power hammer, and the necessary equipment of anvils, swage blocks, sets, flatteners, and other tools. Provision is made for instruction in soldering and brazing, and for an elementary course in ornamental wrought iron work in connection with the architectural course.

The Foundry has benches, tools, and apparatus for bench and floor moulding and core-making, and is able to accommodate twenty students. A gas-fired brass melting furnace, a cupola for melting iron, and the necessary core-ovens and core-benches give facilities for undertaking iron foundry work in green and dry sand and for brass moulding. The shop is served by a hand travelling crane of one ton capacity.

The Machine Shop has twelve 18-inch engine lathes, one 18-inch turret lathe fitted for stud and screw making, one 27-inch engine lathe, one 36-inch vertical drilling machine with compound table, one universal milling machine with vertical milling attachment and dividing headstock, one planer capable of taking work up to 24″ × 24″ × 5 ft., one 16-inch shaper, one universal grinding machine, a centering machine, a cutter grinder, and a buffing and emery grinding machine. There are vise benches for eighteen students, with the necessary hand tools, and a marking-off table. The tool-room contains a full equipment of drills, reamers, milling cutters and accessories, gauges, callipers, and other measuring instruments.

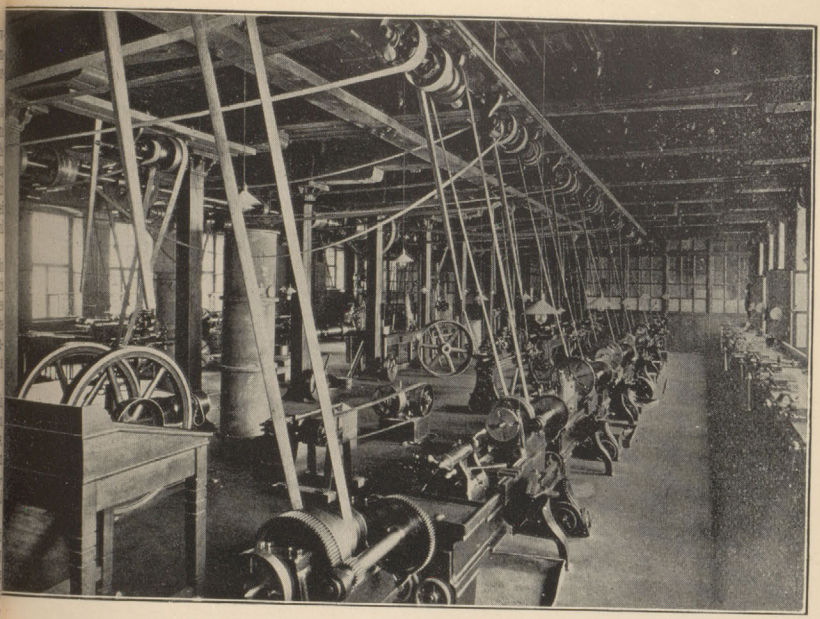
All the machinery in the Workshops is driven electrically by motors taking power from the generating station in the Macdonald Building.

Courses of Instruction.

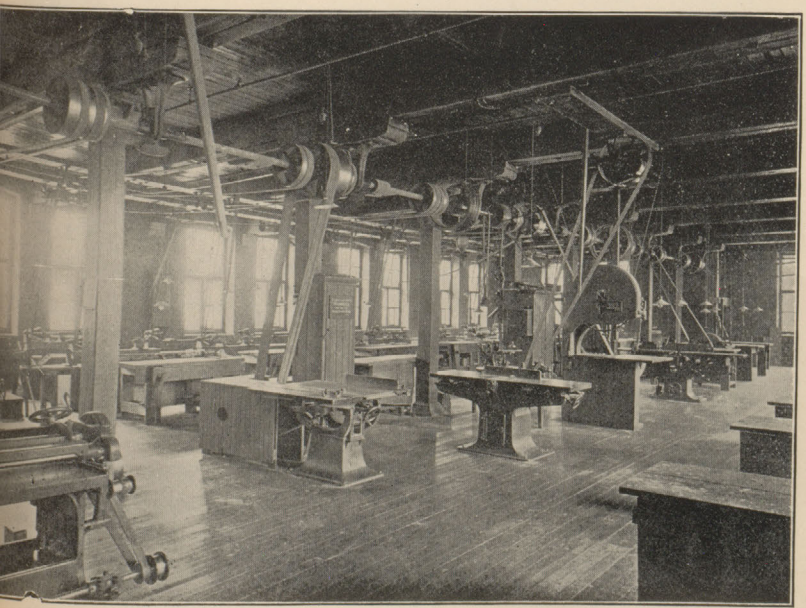
INSTRUCTORS IN SHOPWORK.

CARPENTER'S SHOP AND PATTERN SHOP .. .. G. WOOLEY
SMITH SHOP .. .. D. TAYLOR
FOUNDRY .. .. R. LEWTHWAITE
MACHINE SHOP .. ..J. F. MACOUN

The work of the various shops is carried out under the direction of the Professor of Mechanical Engineering. The following are the subjects of instruction.



Machine Shop.



Pattern Shop.

Carpentry and Joiner Work.—Sharpening and care of wood-working tools. Sawing, planing and paring to size. Preparation of flat surfaces, parallel strips, and rectangular blocks. Construction of the principal joints employed in carpentry and joiner work, such as end and middle lap joints, end and middle mortise and tenon joints, mitres, and dado and sash joints. Dovetailing, scarfing. Joints used in roof and girder work. Wood-turning, use of wood-turning tools.

Pattern making.—Use of pattern-makers' tools. Elements of pattern-making, allowances to be made for draught and for contraction in moulding and casting, use of contraction rule. Preparation of prints and plain core-boxes. Exercises in paring and turning. Construction of patterns and core boxes for pipes, flanges, elbows, tees, and valves. More difficult exercises in pattern making, including built-up patterns and face-plate work. Gear and wheel patterns.

Smith-work.—The forge and its tools. Use and care of smiths' tools. Management of fire. Use of anvil and swage-block. Drawing taper, square and parallel work. Bending, upsetting, twisting, punching, and cutting. Welding and scarfing. Forging, hardening, and tempering tools for forge and machine work. Tempering drills, dies, taps, and springs.

Foundry-work.—Moulders' tools and materials used in foundry work. The cupola. The brass furnace. Preparation of moulding sand. Boxes and flasks. Core-making. Use of core-irons. Bench moulding. Blackening, coring and finishing moulds. Vents, gates and risers. Special methods required in brass moulding. Floor moulding. Open sand work. Advanced examples of moulders' work. Melting and pouring metal. Mixtures for iron and brass casting.

Machine-shop Work.—Exercises in chipping. Preparation of flat surfaces. Filing to straight edge and surface plate. Scraping. Screwing and tapping. Use of scribing block and surface gauge. Marking off work for lathes and other machines. Turning and boring cylindrical work to gauge. Surfacing. Screw-cutting and preparation of screw-cutting tools.

Use of turret lathe. Taper turning. Machining flat and curved surfaces on the planing and shaping machines. Plain and circular milling with vertical and horizontal spindles; gear-cutting. Cutter-grinding. Drilling and boring. Use of jigs. Grinding flat and cylindrical surfaces. Cutting tools for hand and machine; their cutting angles and speeds. Dressing and grinding tools.

During the past session the following special work has been under construction in the workshops :—

A belt testing machine and dynamometers capable of taking a six-inch belt transmitting 15 H. P.

A rocking grate for the locomotive boiler.

A set of jacket-drain tanks and fittings for cylinders Nos. 1 and 3 of the quadruple expansion engine.

A gas engine of 12 B. H. P. fitted for the use of gasoline if required.

A tubular surface condenser arranged for measuring separately the steam used by the air pump in the Thermodynamic Laboratory.

A foundation and brake for the Dake engine.

New countershaft, brackets, and gear for the air-compressor.

XV. Statement of Research Work in the Laboratories—1900-01.

On the effect of cold on the physical properties of iron and steel.

On the influence of bending on the torsional strength of metals.

On the properties of iron and steel as affected by annealing at moderate temperatures.

A series of experiments on frictional losses in $1\frac{1}{2}$ inch pipes and bends under varying velocities of flow.

Experiments on the determination of the 'Miner's Inch.'

On the separation and concentration of chromite, blende, nickeliferous pyrrhotite and certain other minerals by combined gravimetric and magnetic methods.



The Smithy.



The Foundry.

On the crushing and sizing of rocks by means of different types of apparatus.

On the treatment of Nova Scotia mispickel concentrates by cyanide, bromocyanide and chlorination methods.

On conditions affecting the wave form of alternators.

On the effect of change of wave form in alternators on induction and synchronous motors.

On induction motors used as frequency changers.

XVI. Donations During Session—1900-01.

New and additional steam exhaust and water piping in Thermo. Lab.; 1 3″ water meter; 4 weighing machines; 1 Flue gas thermometer; set of tools and dies for turret lathe; 4 new forges in Smith Shop ; 4 anvils ; 2 wood trimmers in Pattern Shop ; 1 d.c. automatic electric lantern; 1 gauge tester; 2 Peabody calorimeters; 4 engine counters; 19 thermometers; 8 pressure gauges; 1 universal tool grinding machine; 1 9½″ brake-pump and governor; 1 Junker calorimeter, and a number of accessories to above, from Sir Wm. Macdonald.

Two 10 k.w. and two 2.5 k.w. transformers, from the Packard Electrical Company.

Ten Weston standard cells; four electrical speed indicators; ten Weston voltmeters; and four Weston ammeters; Anonymous.

Telephone receivers, telephone transmitters, sample of cable, exchange switchboard devices, etc., for lecture illustration, from the Bell Telephone Company of Canada.

Reactance coils and condensers, from the Royal Electric Company.

Power for experimental purposes to the amount of 10 k.w., from the Lachine Rapids Hydraulic and Land Company.

Portrait (photograph) of R. Trevitheck, from the Trevitheck family.

Blue prints, etc., from Messrs. Jos. Hobson, Ch. Eng. G.T.R.; P. A. Peterson, Ch. Eng. C.P.R.; A. Torrey, Ch. Eng. Michigan Central Railroad; W. B. McKenzie, Ch. Eng. I.C.R.; Francis Morton & Co. (Eng.).

Graphite ore from the Ontario Graphite Co.

Mining and Geological Reports from various Provinces, States, Colonies, etc.

A small filter press with force pump attached, from W. R. Perrin & Co., Toronto.

Steels castings for experimental machinery, from the Canada Switch Co., Montreal.

Photographs and samples of material, from the Illinois Steel Co., Chicago.

Samples of wire and plate screens, from Fraser & Chalmers, Chicago.

Samples of ore from Broken Hill, Australia, etc., from Wetherill Separating Co., New York.

Ore and concentrates from Aberllyn, Wales, from Brunner, Mond & Co.

Ore from Nova Scotia, from Bluenose Mining Co., New Glasgow.

Samples of ore, coal, etc., from The Geological Survey of Canada, Ottawa; The Massachusetts Institute of Technology, Boston; The Canadian Smelting Co., Traill; James Douglass, LL.D., New York ; Cumberland Ry. & Coal Co., Montreal ; Andrew Baille, Montreal; J. T. Donald, Montreal; Geo. E. Drummond, Montreal; and others.

Copies of Pocket Book from Carnegie Steel Company, (Pittsburgh).

FACULTY OF APPLIED SCIENCE—TIME TABLE—FIRST AND SECOND YEARS.

Years	Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
First Year.	9	Mathematics.	Mathematics.	Mathematics.	Mathematics.	Mathematics.	Shopwork *C*)
	10	Mathematics.	Mathematics.	Mathematics.	Mathematics.	Mathematics.	Do
	11		English.	Lettering.	English.	Geom. Drawing (*a.*) Lettering (b.)	Do
	12		Physics.	Lettering.	Physics.	Geom. Drawing (*a.*) Lettering (*b.*)	Do
	2 to 5	*A.* Math. Lab. (*a*) *B.* Shopwork. (S. & F.)	*A.* Physical Lab. *B.* Math. Lab. (*a*)	Desc. Geometry.	*A.* Shopwork, (S. & F.) *B.* Physical Lab.	Freehand Drawing.	
Second Year.	9	Mathematics, 1, 2, 3, 4, 5, 6.	Mathematics, 1, 2, 3, 4, 5, 6.	Mathematics, 1, 2, 3, 4, 5, 6.	Mathematics, 1, 2, 3, 4, 5, 6.	Freehand Drawing, 1. Mechanism, 2, 5.	Archt. Drawing, 1, 4. Shopwork, (S. & F.) 3, (M.) 2, 5.
	10	Experimental Physics, 1, 2, 3, 4, 5, 6.	Chemistry, 6. Surveying, 2, 5.	Mathematics. 1, 2, 3, 4, 5, 6.	Experimental Physics, 1, 2, 3, 4, 5, 6.	Freehand Drawing, 1. Surveying, 2, 5.	Do
	11	Chemical Lab., 3, 4, 5, 6. Freehand Drawing, 1. Drawing, 2.	Chemistry, 1, 2, 3, 4, 5, 6.	Chemistry, 6 Elem. of Archt., 1. Kinematics, 3, 4. Surveying. 2, 5.	Chemical Lab., 6. Hist. of Archt., 1. Kinematics, 3, 4.	Mathematics, 1 2, 3, 4, 5, 6.	Do
	12	Chemical Lab., 3. 4, 5, 6. Freehand Drawing, 1. Drawing, 2.	Hist. Archt., 1.	Chemistry, 1, 2, 3, 4, 5, 6	Kinematics, 3, 4.	Chemistry, 1, 2, 3, 4, 5, 6.	Do
	2 to 5	Physical Lab., 1, 2, 3, 5, 6. Mechl. Drawing, 1.	Desc. Geometry, 1, 2, 3, 4, 5, 6.	Chemical Lab., 6. Mapping, 2, 5. Shopwork, (S.) 1 ; (M.) 3, 4.	Archt. Drawing, 1. Chemical Lab , 6. Mapping, 2. Mechl. Drawing, 3, 4, 5.	Chemical Lab , 1. 2, 5, 6. Physical Lab., 3, 4.	

(*A*) One-half of class. (*B*) Other half of class. (*a*) First Term. (*b*) Second Term. (*c*) After Nov. 1st. 1. Architectural Students. 2. Civil Engineering Students. 3. Electrical Engineering Students. 4. Mechanical Engineering Students. 5. Mining Engineering Students. 6. Practical Chemistry Students.
Shopwork :—*S.* Smithy ; *F.* Foundry ; *C.* Carpenter Shop ; *M.* Machine Shop.
The Chemical Laboratories are open to Second, Third and Fourth Year classes daily (Saturday excepted) from 9 a.m. to 5 p.m.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Architecture, 1. Experimental Physics, 3. Transportation, 5.	Art History, 1. D. C. Dyn Machy., 3. Mineralogy, 5, 6. Roads and Canals, 2.	Dyn. of Mach, 3, 4. Freehand Drawing, 1. Geology, 2, 5, 6.	D. C. Dynamo Machy, 3 Desc. Geom., 2. History of Arch't. 1. Mineralogy, 5, 6.	Freehand Drawing, 1. Mathematics, 2, 3, 4, 5, and 1.**	Archt. Designing, (*a*) 1. Geological Excursion, (*c*) 2. 5. Testing Lab. (*b*) 1, 2, 3, 4, 5.
10	Dyn. of Mach., 3, 4. Freehand Drawing, 1. Geology, 2, 5, 6.	Elem. Metallurgy (*a*) 4. Surveying, 1*, 2, 5.	Freehand Drawing, 1. Shopwork (P. & M.) (*a*), 3, 4. Surveying, 2, 5. Thermo. Lab., (*b*), 3, 4.	Archt. Designing, 1. Experimental Physics. 3. Transportation, 5.	Geology, 2, 5, 6. Shopwork (P. & M.) (*b*) 3, 4. Surveying, 1.*	Do.
11	Chemistry, 6. Freehand Drawing, 1. Thermodynamics, 2. 3, 4, 5.	Theory of Structures, 1, 2, 3, 4, 5. Chemistry, (*a*) 6.	Metallurgy, (*a*), 5, 6. Shopwork (P. & M.), (*a*) 3, 4. Surveying, 1*. Thermo Lab., (*b*), 3, 4. Ore Dressing, (*b*), 5, 6.	Archt. Designing, 1. Chemistry, 6. Machine Design, 3, 4, 5. Roads and Canals, 2.	Freehand Drawing (*b*) 1. Graphical Statics (*a*) 1, 2, 3, 4, 5. Shopwork (P. & M.), (*b*) 3, 4. Thermo. Lab. (*b*) 2, 5.	Museum Work in Geology (*d*) 2. 5.
12	Mathematics 2, 3, 4, 5 & 1 **	Theory of Structures, 1, 2, 3, 4, 5	Hist. of Archt., 1. Metallurgy, (*b*), 5, 6. Municipal Eng., 2 Ore Dressing. (*a*), 5, 6. Shopwork, (P. & M), (*a*), 3, 4. Thermo. Lab., (*b*), 3, 4.	Theory of Structures, 1, 2, 3, 4, 5.	Graphical Statics (*a*) 1, 2 3, 4, 5. Shopwork (P. & M.), (*b*) 3, 4. Thermo. Lab. (*b*) 2, 5.	Museum Work in Geology (*d*) & (*b*) 2, 5.
2 to 5	Archt. Designing, 1. Arch. Eng., 1. Mechl. Drawing, 3, 4, 5 Physical Lab., 2, 6.	Archt. Designing, 1. Chemical Lab., 6, (*d*) 5. Dynamo Lab., 3, Fire Assay Lab., (Jan.) 5. Mapping, 2 (*c*) 5; Ore Dress Lab., (Feb-Mar) 5. Mach. Des. Exercises. 4.	Chem Lab., (*a*) 5, 6. Archt. Designing. (*e*), 1. Mapping, 1*, 2. Physical Lab., 3, 4. Fire Assaying, (*b*), 5, 6.	Det. Mineralogy, 5, 6. Dynamo Lab., 3. Desc. Geom., (*a*) 1, 2. Mechl. Drawing, 4. Modelling (*b*), 1. Railway Struct., (*b*) 2.	Archt. Designing, 1. Archt. Eng., 1. Chemical Lab., 5, 6. Graphical Statics, 2. Mapping (*c*) 5. Physical Lab., (*a*) 3. Shopwork, (S. & F.), 4.	

(*a*) First Term. (*b*) Second Term. (*c*) First half of first Term. (*d*) Second half of first Term. (*e*) Second half of Second Term. 1. Architectural Students. 2. Civil Engineering Students. 3. Electrical Engineering Students. 4. Mechanical Engineering Students. 5. Mining Engineering Students. 6. Practical Chemistry Students.

*3rd Year Architects with 2nd Civils. **Optional Course. (Shopwork; *M.* Machine Shop; *P.* Pattern Shop.)

The Chemical Laboratories are open to Second, Third and Fourth Year Classes (Saturday excepted) from 9 a.m. to 5 p.m.

FACULTY OF APPLIED SCIENCE—TIME TABLE—FOURTH YEAR.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Architecture, 1. Electro-Chem. Lab., (*b*) 3, 6. Theory of Struct., 2 & 1. Thermodynamics, (*a*) 3, 4. Mining, 5.	Art History, 1. Dyn. of Mach., 3, 4. Mining, 5. Railway Eng., 2.	Designing, 2. Geology, (*a*) 1. Metall. Struct. Mat. Alloys, etc., 4, 5. Phys. Chem. Lab., 3 (*b*) 6.	Designing, 1. Hydraulic Machy., etc., 2, 3, 4, 5.	Architecture, 1. Mechl. Eng. 4 ; (*a*) 2, 3, 5, Mining Lab. (*b*) 5.	Designing, (*b*) 1. Dynamo Lab., (*b*) 3. Geodetic Lab., 2. Geology (*a*) 1. Mining Lab., 5. Shopwork (*M.*) 4.
10	Electro Chemistry, (*b*) 3, 6, Electro Metall. } (*b*) 5 ** Hydraulics } Freehand Drawing (*b*) 1. Geology (*a*) 1. Hydraulics. 2, 3, 4 ; (*a*) 5.	Designing, 1. Elect. Eng., 3. Mining Machy } (*b*) 5 ** Physiography } Ore Deposits, (*a*) 5. Thermo. Lab., 4. Theory of Str., 2, 1**	Designing, 2. Dyn. of Mach., 4. Elect. Eng., 3. Freehand Drawing, 1. Metallurgy, (*b*) 5. Ore Dressing, etc., (*a*) 5.	Designing, 1 (*b*) 2. Mechl. Eng., 4 ; (*a*) 2, 3, 5. Mining, (*b*) 5.	Elect. Eng., (*a*) 3. Freehand Drawing, (b) 1. Geodesy, 2. Geology (*a*) 1. Mining Lab., 5. Thermo. Lab., 4.	Do.
11	A. C. Machy.. 3. Freehand Drawing, 1. Ore Dressing, etc.. (*a*) 5. Mining Colloq., (*b*) 5.	Designing, 1, 2. Elect. Measurements, 3. Mining Colloq. (*a*) 5. Mining Machy } (*b*) 5 ** Physiography } Thermo. Lab., 4.	Dyn. of Mach., 4. A. C. Machy., 3. Designing, 2. Freehand Drawing, 1. Mineralogy (*a*) 5. Pract. Geology, (*b*) 5.	Dyn. of Mach., 3. 4. Metallurgy, 5. Org. Chemistry, 6. Railway Eng., 2. Thermodynamics, 3, (*a*) 4 Water Colouring, (*b*) 1.	A. C. Machy., 3. Designing, 2. Freehand Drawing, 1. Mining Lab., 5. Thermo. Lab., 4.	Do.
12	Chemistry, 6. Freehand Drawing, (*a*) 1. Geodesy, 2. Machine Design, (*a*) 3, 4. Metallurgy, 5. Water Colouring, (*b*) 1.	Designing, 1, 2. Mining Design, 5. Phys. Chemistry, 3, (*b*) 6. Thermo. Lab , 4.	Mach. Des. Ex. 4. Geology Colloq., (*b*) 5. Mineralogy, (*a*) 5. Municipal Eng., 2 & 1 **	Designing, 2. Canadian Geology (*b*) 5. Chemistry, 6. Dyn. of Mach., 3, 4. Petrography, (*a*) 5. Wator Colouring, (*b*) 1.	Designing, 2. Electro Chem., 6 ; (*b*) 3. Freehand Drawing, 1 Mining Lab., 5. Theory of Struct., 2 & 1 ** Thermo. Lab., 4.	Museum Work in Geology (*a*) 1.
2 to 5	Archt. Eng., 1. Chemical Lab.. 5, 6. Designing, 1, 2, 4. Dynamo Lab., 3.	Chemical Lab., 6 ; (*a*) 5. Designing, 1. Hydraulic Lab., (*a*) 3. Petrog. Lab., (*b*) 5. Testing Lab., 2 & 1 ** Thermo. Lab., 4.	Chemical Lab., (*b*) 6. Designing, 1, (*b*) 5. Dyn. of Mach., (*c*) 4. Dynamo Lab , 3. Hydraulic Lab. (*a*) 2, 4, 5. Testing Lab., (*d*) 4.	Chemical Lab., 5, 6. Designing, (*a*) 1, 4. Design Steel Struct., (*b* 2 Modelling, (*b*) 1. Physics. (*a*) 3. Testing Lab., 2 & 1.	Archt. Eng., 1, 2. Chemical Lab , 6. Designing, 1. Dynamo Lab., (*a*) 3. Graph. Statics., 2 & 1 ** Mining Lab., 5. Physical Lab., (*b*) 3. Thermo. Lab., 4.	

**Optional Course. (*a*) First Term. (*b*) Second Term. (*c*) First half of second Term. (*d*) Second half of second Term. 1. Architectural Students. 2. Civil Engineering Students. 3. Electrical Students. 4. Mechanical Engineering Students. Mining Engineering Students. 6. Practical Chemistry Students.
The Chemical Laboratories are open to Second, Third and Fourth Year Classes daily (Saturday excepted) from 9 a.m. to 5 p.m.

Faculty of Law.

(Macdonald Foundation.)

The Curriculum extends over three years. It includes lectures upon all the branches of the Law administered in the Province of Quebec, and also upon Roman Law, Legal History, and the Constitutional Law of England, and of the Dominion. Its primary design is to afford a comprehensive legal education for Students who intend to practise at the Bar of the Province. In all the courses the attention of Students will be directed to the sources of the Law, and to its historical development. During their first year the students will attend one hundred lectures on Roman Law, from which the Law of this Province is in great part derived. In the lectures on Legal History the history of our law since the Cession, and its relation with the French and with the English laws, will be explained. First Year Students will also attend courses on the Law of Persons; the Law of Real Estate; the Law of Obligations; the Elementary rules of Procedure; and an introductory course on Criminal Law. The remaining branches of the law, civil, commercial, and criminal, will be dealt with in the second and third years. During the three years the Civil Code, the Criminal Code, and the Code of Civil Procedure will be covered, and lectures will also be given upon subjects, such as Bills of Exchange, Merchant Shipping, and Banking, which are regulated mainly by special statutes. A course of lectures upon Medical Jurisprudence is generally arranged for.

Students have the free use of the Law Library of the Faculty, to which large additions are continually being made, those of last year including such valuable works of reference as the American and English Encyclopædia of Law and the American and English Encyclopædia of Pleading and Practice. The prineipal reports and legal periodicals are taken. A special room for Law Students

is provided in the Redpath Library. This room is open during the day, and in the evenings from eight to ten o'clock.

The lectures are delivered in the rooms furnished for the Faculty in the East Wing of McGill College by its munificent benefactor, Sir Wm. C. Macdonald. The Faculty desire to impress upon English students the great importance of obtaining a familiar knowledge of French. In the practice of the profession in this Province it is almost indispensable that a lawyer shall be able to write and speak French. All who intend to become students of law are urged to pay special attention to this subject.

Those students who are able to take the B.A. course before entering upon their legal studies are strongly recommended to do so. Those for whom this is impossible are advised to attend the courses in the Faculty of Arts for two years.

Matriculation.

For particulars of the University Matriculation Examination for students in law see pp. 11-22.

The attention of students who intend to practise law in the Province of Quebec, or to be admitted to the notarial profession, is called to the statutory requirements as to admission to study. These will be found on pp. 239-242 *infra*.

Scholarships and Prizes.

Various scholarships and prizes will be awarded to the students of each year who obtain the highest distinction at the Examinations in April, 1902.

No scholarship or prize will, however, be awarded to any student unless in the estimation of the Faculty a sufficiently high standing be attained to merit it.

Faculty Regulations.

1. Students of Law shall be known as of the First, Second, and Third Year, and shall be so graded by the Faculty. In each year, Students shall take the studies fixed for that year, and those only, unless by special permission of the Faculty.

2. The register of Matriculation shall be closed on the 1st of October in each year, aand return thereof shall be immediately made by the Dean to the Registrar of the University. Candidates applying thereafter may be admitted on a special examination to be determined by the Faculty; and, if admitted, their names shall be returned in a supplementary list to the Registrar.

3. The lectures will be delivered between the hours of half-past 8 and half-past 9 in the morning, and between 4 and half-past 6 in the afternoon; and special lectures in the evening at such hours and in such order as shall be determined by the Faculty. Professors shall have the right to substitute an examination for any such lecture.

4. At the end of each College year there shall be a general examination of all the classes, under the superintendence of the Professors, and of such other examiners as may be appointed by the Corporation. The examination shall be conducted by means of printed questions, answered by the Students in writing in the presence of the Examiners. The result shall be reported as early as possible to the Faculty.

After the examinations, the Faculty shall decide the general standing of the Students.

5. At the end of the third College year there shall be a Final Examination of those Students who have completed the Curriculum. This Examination shall be conducted partly by written papers and partly orally. It shall cover all the subjects upon which lectures have been delivered during the three years' course. Those Students who satisfy the examiners shall be entitled, after making the necessary declaration and payament of the Graduation Fee to proceed to the Degree of B.C.L. The Elizabeth Torrance Gold Medal shall be awarded to the Student who shall obtain the highest marks in the Examination, provided his answers shall, in the estimation of the Faculty, be of sufficient merit to entitle him to this distinction. There shall be no Sessional Examination of Students who are candidates in the Final Examination.

6. No Student shall be considered as having kept a Session unless he shall have attended regularly all the courses of Lectures, and shall have passed the Sessional Examinations to the satisfaction of the Faculty in the classes of his year.

7. The Faculty shall have the power, upon special and sufficient cause shown, to grant a dispensation to any Student from attendance on any particular Course or Courses of Lectures, but no distinction shall in consequence be made between the Examinations of such Students and those of the Students regularly attending Lectures.

8. Every Candidate, before receiving the Degree of B.C.L., shall make and sign the following declaration:—

Ego A.B. polliceor sancteque recipio, me, pro meis viribus, studiosum fore communis hujus Universitatis boni, et operam daturum ut ejus decus et dignitatem promoveam, et officiis omnibus ad Baccalaureatus in Jure Civili gradum pertinentibus fungar.

9. The fees in the Faculty will be as follows for Students matriculating after Nov., 1897 :—

Matriculation or Registration Fee	$ 5 00
Sessional Fee by Ordinary Students (including Athletics)	53 00
Athletics Fee, payable by Partial Students	3 00
Graduation Fee	12 50
Sessional Fee by Partial Students, for the course of Roman Law, $20; for each of the courses on Successions, Criminal Law, Commercial Law, Obligations, aand Civil Procedure, $15; and for each one of the shorter courses	10 00

Matriculation and Sessional Fees must be paid on or before Oct. 1st; and, if not so paid, the Student in default shall incur a fine of $3; his name shall be removed from the books; and his attendance at lectures shall not be credited until his fees and the said fine have been paid.

COURSES OF LECTURES.

Roman Law.

PROFESSOR WALTON.

During the first part the external history of the law from the early period to the codification of Justinian will be dealt with. The sources of the law will be described, and the gradual evolution explained, by which the law of the city of Rome became fitted to be the law of the civilized world. A brief sketch will be given of the legal institutions of Rome in the first period and of the early constitutional history.

In the doctrinal part of the course matters mainly of antiquarian interest will be touched only slightly. Those portions of the Roman Law which have been followed most closely in the existing law of the Province, *e.g.*, Property, Servitudes, Pignus and Hypothec, and Obligations, will be treated in detail, and the modifications made by the modern law will be noticed. Class-examinations will be held from time to time, and a first and second prize of books will be given to the two students who obtain the highest marks in these examinations.

Text-book, Moyle's or Sandar's Institutes of Justinian, or Girard, Manuel de Droit Romain.

Books of reference :

Muirhead's Historical Introduction to Roman Law.

Muirhead's Institutes of Gaius.

Maynz, Cours de Droit Romain.

Puchta, Institutionen.

Maine's Ancient Law.

Constitutional and Administrative Law.

PROFESSOR WALTON.

The object of this course is to shew the actual working of the Canadian Constitution. A sketch of the Constitutional History prior to Confederation is given. The B. N. A. Act is explained, and the leading cases discussed which illustrate the respective powers of the Federal and of the Provincial

Legislatures. The growth of Cabinet Government is traced, and some of the fundamental rules of the English Constitution are expounded and contrasted with those followed in other countries.

No text-book is prescribed, but students are recommended to refer to Todd, Parliamentary Government in the British Colonies ; Houston, Constitutional Documents of Canada ; Dicey, Law of the Constitution; Anson, Law and Custom of the Constitution.

Legal History and Bibliography.

PROFESSOR MCGOUN.

This course comprises an outline of the history of the law in force in the Province of Quebec.

The main source from which this law is derived is the Customary Law of France, as modified by the principles of Roman Law, embodied in several of the codes or collections of Roman Law before the time of Justinian. The Customs of France after being reduced to writing were further modified by the influence of modern Roman Law, which prevailed throughout the larger part of France. The ordinances of the French kings and the commentaries of the great jurists, from Cujas and Dumoulin down to Pothier, brought the Civil Law of France into the systematic form in which it was introduced into this Province. The custom of Paris, one of the most important of those recognized in France, became formally the basis of the Civil Law in this country, and the ordinance of 1667 was the main authority for procedure.

Since the opening of the British regime the development of Lower Canadian Civil Law has proceeded independently of the Civil Law of France, where the Code Napoléon was passed early in the Century. In Lower Canada a code on the same lines was adopted shortly before Confederation. Lower Canadian Civil Law has been modified by English law in commercial matters, and also by statutes passed in the Province. The Criminal Law has been derived almost exclusively from the Criminal Law of England.

The leading authorities upon the main branches of the law, with the reports of decisions of our courts, are brought under the attention of the students in this course.

Law of Corporations and of Joint Stock Companies.

PROFESSOR MCGOUN.

This course is the sequel of the course on Agency and Partnership. The doctrine of limited liability and the opportunity which it affords for carrying out enterprises of great importance, by means of capital contributed by a large number of individuals, is treated of in this course. The growth of Corporations, both those established by long custom, and those created by Royal Charter, or by Parliamentary or Legislative authority, is also explained, and the relation between these corporations and the ordinary forms of joint stock companies. Corporations sole and Corporations aggregate are defined, and the principles of laws relating to Corporations and Companies explained. In the alternate years Prof. McGoun will lecture on Agency and Partnership.

Agency and Partnership.

This course begins with the principles of the law of Mandate as laid down in the Civil Code of Lower Canada, and treats of Civil and of Commercial Agency. The rights and liabilities of principal and agent both between themselves and in relation to third parties is considered, and special attention is directed to the powers of agents in selling, pledging, and dealing with the property of the principal. The law relating to Factors or Commission Merchants, Brokers, and other Agents is explained.

In partnership the right of each partner to bind his fellow partner in virtue of the mandate reciprocally given and enjoyed, leads to the distinction between Civil and Commercial partnership, and the Limited Partnership or Société en Commandite is also treated of. The distinction between Partnership and Joint Stock Companies leads to a consideration of the connexion between this subject and the subject of Companies

and Corporations which form the subject matter of the Course in the alternate years.

Criminal Law.

PROFESSOR MR. JUSTICE DAVIDSON.

This course includes :—

A history of the Criminal Law and Criminal Procedure of England ; and of their introduction into and development throughout Canada;

Discussion of the Criminal Code and other Statutes enacting criminal offences ; of the rules of evidence in criminal cases, of the Fugitive Offenders' Act; of extradition, and generally of the principal features belonging to the Criminal Law of the Dominion.

Commercial Law.

PROFESSOR R. C. SMITH.

The subjects dealt with will include Commercial Sales, Bills and Notes, the law of Carriers, the law of Insurance, and the law of Banks and Banking.

The course on carriers will cover :

1. Carriers, contracts with,
   (a) Affreightment.
   (b) Merchant Shipping.
   (c) Bottomry and Respondentia.

The course on Insurance will cover :

2. Insurance, contracts of,
   (a) Marine Insurance.
   (b) Fire Insurance.
   (c) Life Insurance.

Civil Procedure.

MR. GORDON W. MACDOUGALL.

This course to the students of the First Year is intended to form an introduction to the subject, to explain the simpler kinds of actions, the general rules of pleading, and the jurisdiction of the several courts.

The revised Code of Civil Procedure for the Province of Quebec is the text-book.

Civil Procedure.

MR. PERCY C. RYAN.

The advanced course for the Second and Third Years covers all matters of procedure not dealt with in the First Year Course, and includes Provisional Remedies, such as capias, attachment before judgment, injunction, etc., and special proceedings, such as proceedings relating to corporations and public offices, mandamus, etc., as well as the rules of pleading in the more complicated classes of action. It will be divided into two parts, one of which will be taken in each alternate year.

Marriage Covenants and Minor Contracts, Prescription, Lease, and Municipal Law.

PROFESSOR FORTIN.

Two courses. In alternate years.

Successions, Gifts, and Substitutions.

PROFESSOR MR. JUSTICE DOHERTY.

Two courses. In alternate years.

I. The Law of Succession.

The course consists of a commentary and explanation of the whole of Title I., and the third Chapter of Title II. of the Third Book of the Civil Code. The order followed by the Code in dealing with the different matters, coming within the scope of this course, has however been departed from with a view to presenting to the Student the law governing successions as one whole. The subject will be developed as nearly as possible in the following order:—

1. General notions, definitions, and divisions of the subject. The Testamentary Succession. The Ab-Intestate Succession.
2. Rules of Law common to both Successions.
3. Rules peculiar to the Testamentary Succession.
4. Rules peculiar to the Ab-Intestate Succession.
5. Partition of the Succession (and of property held in undivided ownership generally), its incidents and effects.

II. Gifts and Substitutions.

This course comprises a commentary on and explanation of Chapters I., II., and IV. of Title II. of the Third Book of the Civil Code, dealing with:

1. Gifts inter vivos.
2. Gifts in contemplation of death, as permitted in Contracts of Marriage.
3. Substitutions.

Obligations.

MR. AIMÉ GEOFFRION.

This course of lectures will consist of a commentary on the title on obligations in the Civil Code, less the chapter of proof (articles 982 to 1,202 inclusive). Our law on the subject will be compared with the old French law and the modern French law; and its general principles will be explained and illustrated.

Real Property Law, Privileges and Hypothecs, Registration and Notarial Law.

PROFESSOR MARLER.

First Year Course—25 lectures.

Distinction of Things—Corporeal moveables and immoveables; Immoveables by destination; Incorporeal property; Real and personal rights.

Ownership—Its characteristics and limitations. Possession, good and bad faith; Possessory actions; The Petitory Action; their results on the Possessor. Accession, natural and industrial.

Usufruct—General characteristics; Fruits and their perception; Quasi-usufruct; Modes of enjoyment by usufructuary; His duties before and during usufruct; How terminated.

Second and Third Year Course—25 lectures, in alternate years.

The acquisition of immoveables; Hypothecs; Privileges; Servitudes; Registration.

Public International Law.

PROFESSOR LAFLEUR.

Sovereignty and equality of Independent States, Recognition of Belligerency and Independence. Justifiable grounds of intervention. Modes of territorial acquisition. Territorial boundaries. Doctrine of Exterritoriality. Treaties and Arbitrations. Laws of War. Neutrality of States and of individuals. Laws of Blockade. Contraband. Confiscation. Prize-Courts and their jurisprudence.

The students' attention will be specially directed to Treaties, Diplomatic Relations, and International Arbitrations, in which Canada is directly concerned.

Private International Law.

PROFESSOR LAFLEUR.

Distinction between the *a priori* and positive methods. Sources of the positive law of Quebec on the subjects. Application and illustration of the rules for solving conflicts of law in regard to the different titles of the Civil Code. Comparisons between our jurisprudence and that of England, France and Germany.

These two courses will be given in alternate years.

Syllabus.

Monday, 16th September, 1901, Introductory Lecture by the Dean.

Tuesday, 17th September, Ordinary Lectures begin.

Friday, 20th December. Last day of lectures in Law.

Monday, 6th January, 1902. Lectures, Second Term, begin.

Tuesday, 7th January. Bar Examinations take place at Montreal.

Thursday, 4th April. Last day of lectures in Law.

Wednesday, 30th April. Convocation for Degrees in Law.

Tuesday, 1st July. Bar Examinations take place at Quebec.

Special Holidays.—On the following days, when they fall within the session, no lectures will be delivered, viz.: Good Friday, Easter Monday, and Thanksgiving Day. On the following days the morning lectures will be omitted, viz.: Ash Wednesday, All Saints Day (Nov. 1st), and Conception (Dec. 8th).

Examinations.

The University Examinations are held in April, at the close of the session.

Requirements for Degree of Doctor of Civil Law.

Adopted October, 1881.

Every Candidate for the degree of D.C.L. in Course must be a Bachelor of Civil Law of twelve years' standing, and must pass such examination for the Degree of D.C.L. as shall be prescribed by the Faculty of Law. He shall also, at least two months before proceeding to the Degree, deliver to the Faculty twenty-five printed copies of a Thesis or Treatise of his own composition on some subject, selected or approved by the Faculty, such Thesis to contain not less than fifty octavo pages of printed matter, and to possess such degree of merit as shall, in the opinion of the Faculty, justify them in recommending him for the degree.

The Examination for the Degree of D.C.L. in Course, shall, until changed, be on the following subjects and authors, with the requirement of special proficiency in some one of the groups below indicated. In the groups other than the one selected by the Candidate for special proficiency, a thorough acquaintance with two works of each group shall be sufficient, including in all cases the work first mentioned in each group and the first two works in the third group. In the first group one work on Public and one on Private International Law must be offered.

1. International Law

A. Public :—

Twiss, Sir T., Law of Nations.
Hall, W. E., International Law.
Harcourt, Sir W. V., Letters by *Historicus*.
Ortolan, T., Diplomatie de la Mer.
De Martens, Droit International.
Holland, Studies in International Law.

B. Private :—

Savigny, Private International Law (Ed. Guthrie).
Bar, Private International Law (Ed. Gillespie).
Foelix, Droit International Privé.
Laurent, Droit Civil International.
Brocher, Droit International Privé.
Fiore, Droit International Privé (Ed. Pradier-Fodéré).
Dicey, Conflict of Laws.
Story, Conflict of Laws.
Lafleur, E., Conflict of Laws.

2. Roman Law.

Maynz, Droit Romain.
Muirhead's Roman Law.
Girard, Manuel de Droit Romain.
Ortolan's Institutes (Ed. Labbé).
Savigny, Roman Law in the Middle Ages.
Cuq, Les Institutions Juridiques.
Puchta, Institutionen.
Krüger, Römische Rechtsquellen.
Roby's Introduction to the Digest.
Hunter's Roman Law.

3. Constitutional History and Law.

Dicey's Law of the Constitution.
Stubbs' Constitutional History of England.
Hearn, Government of England.
Bagehot, English Constitution.

Franqueville, Gouvernement et Parlement Britanniques.
Gneist, Constitution of England.
Hallam, Constitutional History of England.
May, Constitutional History of England.
Gardiner, Constitutional History of England.
Freeman, Growth of the English Constitution.
Mill, Representative Government.
Anson, Law and Custom of the Constitution.

4. Constitution of Canada and Works Relevant Thereto.

Todd, Parliamentary Government in the British Colonies.
Bourinot, Federal Government in Canada.
Cartwright, Cases under the British North America Act.
Lord Durham's Report on British North America.
Lareau, Histoire du Droit Canadien.
Houston's Constitutional Documents of Canada.
Volume O., Statutes of Lower Canada.
Maseres' Collection of Quebec Commissions.
Viollet, Histoire du Droit Français.
Dilke, Problems of Greater Britain.
Bryce, American Commonwealth.
Curtis, History of the Constitution of the United States.
Cooley, Principles of Constitutional Law.

5. Criminal Law, Jurisprudence, and Political Science.

Stephens, History of the Criminal Law.
Blackstone, Vol. IV.
Harris, Principles of Criminal Law.
Holland, Elements of Jurisprudence.
Austin, Lectures, omitting chapters on Utilitarianism.
Lorimer's Institutes.
Amos, Science of Law.
Woolsey, Political Ethics.
Lieber, Political Ethics.
Freeman, Comparative Politics.
Aristotle's Politics, by Jowett.

Appendix.

The attention of intending Students is called to the following provisions of the Revised Statutes of Quebec and amendments, as bearing on the requirements for the study and practice of Law in the Province.

I. Regulations Applicable to those who Intend to Become Members of the Bar.

Article 3544 R.S.Q.—Examinations for admission to study and to practise law in the Province of Quebec are held at the time and place determined by the General Council.

The places and dates as at present fixed are :

MONTREAL.....Tuesday, 7th Jan., 1902.
QUEBEC.....Tuesday, 1st July, 1902.

and alternately in Montreal and Quebec every six months, namely—at Montreal, on the second Tuesday of each January, and at Quebec on the first Tuesday of each July.

All information concerning these examinations can be obtained from the General Secretary's Office. The present General Secretary is Arthur Globensky, Esq., Montreal.

Article 3546.—Candidates must give notice as prescribed by this article at least one month for the study and fifteen days for the practice before the time fixed for the examination to the Secretary of the Section in which he has his domicile or in which he has resided for the past six months.

The present Secretary of the Montreal Section is Edmond Brossard, Esq., 66 St. James Street, Montreal.

Article 3503a.—Added by Statute of Quebec, 53 Victoria (1890), Cap. 45, provides that Candidates holding the diploma of Bachelor of Arts, Bachelier-es-Lettres, or Bachelier-es-Sciences from a Canadian or other British University are dispensed from the examination for admission to study. Such Candidates are required to give the notice mentioned above.

Article 3548 R.S.Q. (as altered by by-law of the General Council).—On giving the notice prescribed by Article 3546,

the Candidate pays the Secretary a fee of $2, and makes a deposit of $45 for a complete certificate of admission to study; of $30 for a partial certificate of admission to study; and of $70 for admission to practice, which deposit, less $10, is returned in case of his not being admitted.

Article 3552 (amended 1894, Q. 57 Vic., c. 35).—To be admitted to practice, the Student must be a British subject, aand must have studied regularly and without interruption during ordinary office hours, under indentures before a Notary as Clerk, or Student with a practicing Advocate, during Four Years, *dating from the registration of the certificate of admission to study.* This term is reduced to Three Years in the case of a student who has followed a regular law course in a University or College in this Province and taken a degree in law therein.

The By-Laws passed by the General Council of the Bar of the Province of Quebec, 16th Sept., 1886, and amended 10th Feb., 1892, provide as follows:—

Art. 42.—A course of lectures on law given and followed at a University or College in this Province, and a diploma or degree conferred on students by such university or college, shall be held to be such as contemplated in art. 3552 R.S.Q. only when the university or college conferring the degree and the student who receives it shall have efficiently followed the programme herein set forth. This article and article 44 shall apply to students already admitted only as regards lectures to be given after the 1st of January, 1887.

2. The subjects on which lectures shall be given, and the number of lectures required on each subject for a regular course of lectures on law in a university or college shall be as follows :—

ROMAN LAW :—103 Lectures.

This subject shall include an introduction to the study of Law and the explanation of and comments on the Institutes of Justinian and the principal jurisconsults of Rome.

Civil, Commercial, and Maritime Law :—413 Lectures.

Lectures on these subjects shall cover at least three years. They consist of the history of French and Canadian law, the explanation of and comments on the Civil Code of the Province of Quebec and the Statutes relating to Commerce and Merchant Shipping.

Civil Procedure :—103 Lectures.

Lectures on this subject shall extend over at least two years. It shall consist of the explanation of and comments on the Code of Civil Procedure and the Statutes amending it, the organization of the Civil Courts of this Province and the history of the different judicial systems of the country; also, the special modes of procedure provided by statutes and laws of general application.

International Law, Private and Public :—21 Lectures.

Criminal Law :—69 Lectures.

This subject includes the history of criminal law in Canada, the constitution of criminal courts, criminal procedure, comments on statutes relating to criminal law, the relation of criminal law in Canada to the criminal law of England. The lectures shall extend over two years.

Administrative and Constitutional Law :—41 Lectures.

These subjects include an inquiry into the different political institutions and the public institutions of the country, the powers, organization and procedure of the Federal Parliament and of the Local Legislature, the laws on Education and the Municipal Code.

Art. 43.—Candidates for practice who hold a degree in law from a university or college in this Province shall produce, with their notices, a certificate from the principal or rector of such university or college to the effect that they followed a course of lectures on law in the same, during at least three

years, in conformity with the by-laws of the Bar ; and such certificate shall further specify the number of public lectures at which they shall have attended on each subject mentioned in the foregoing programme, during each of the said three years. The last part of this certificate shall only be required for courses of lectures given after the 1st January, 1897.

Art. 44.—The examiners shall not consider a university degree in law valid for the purposes of admission to the Bar if they find that the candidate has not in fact followed the programme above.

II. Regulations Applicable to those who Intend to Become Notaries.

For the regulations applicable to candidates for the Notarial Profession see Revised Statutes of Quebec, Arts. 3801-3833, and 53 Vict., c. 45 (Queb.).

TIME TABLE.

INTRODUCTORY LECTURE, Monday, 16th Sept., 4 p.m.

FIRST YEAR STUDENTS, 1901–1902.

Tuesday, 17th Sept., to Friday, 15th Nov., 9 Weeks.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8 30	Obligations. Mr. A. Geoffrion	Procedure. Mr. Gordon Macdougall.	Obl.	Procedure.	Obl.
4.00	Roman Law. The Dean.	Rom.	Rom.	Rom.	Constitutional Law. The Dean.
5.00	Legal History. Prof McGoun.	Persons. Prof Lafleur.	Hist.	Persons.	Hist.

Monday, 18th Nov., to Friday, 20th Dec., 5 weeks.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8.30	Obl.	Procedure.	Obl.	Proced.	Obl.
4.00	Rom.	Rom.	Rom.	Rom	Const.
5.00	Real Rights. Prof. Marler	Persons.	Persons.	Persons.	Real Rights.

CHRISTMAS.

Monday, 6th Jan., to Friday, 7th March, 9 weeks.

Hours.	Monday.	Tuesday.	Wednesday	Thursday.	Friday.
8.30	Obl.		Obl.		Obl.
4.00	Rom.	Constitutional Law. The Dean.	Rom.	Const.	Rom.
5.00	R. R. 3 wks.	Rom.	R. R.	Rom.	R. R.

Monday, 10th March, to Friday, 4th April, 4 weeks.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8.30					
4.00	Rom.	Const.	Rom.	Const.	Rom.
5.00	Criminal Law. Prof Mr. Justice Davidson.	Crim.	Crim.		Crim.

Roman Law	115 lectures.	Criminal	10 lectures.
Legal History	25 "	Constitutional and Administrative Law	39 "
Persons	25 "		
Real Rights	25 "	Total	314
Procedure	25 "		
Obligations	50 "		

TIME TABLE.

INTRODUCTORY LECTURE, MONDAY, 16TH SEPT., 4 P.M.

SECOND AND THIRD YEAR STUDENTS, 1901–1902.

TUESDAY, 17TH SEPT., TO FRIDAY, 15TH NOV., 9 WEEKS.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8.30	Gifts and Substitutions. Prof. Mr. Justice Doherty.	Civ. Procedure. Mr. Ryan.	Gifts and Substitutions.	C. P.	Gifts and Substitutions.
4.00	Marriage Covenants, &c. Prof. Fortin.	Marriage Covenants, &c.		Marriage Covenants, &c.	Marriage Covenants, &c.
5.00	Criminal Law. Prof. Mr. Justice Davidson.	Commercial Law. Prof. R. C. Smith	Crim.	Comm. Law.	Crim.

MONDAY, 18TH NOV., TO FRIDAY, 20TH DEC., 5 WEEKS.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8.30	Gifts, &c.	C. P.	Gifts, &c.	C. P.	Gifts, &c.
4.00	Marriage Covenants, &c. Prof. Fortin.	Marriage Covenants, &c.		Marriage Covenants, &c.	Marriage Covenants, &c.
5.00	Criminal.	Commercial Law.	Crim.	Comm. Law.	Crim.

MONDAY, 6TH JAN., TO FRIDAY, 7TH MARCH, 9 WEEKS.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8.30	Gifts, &c. 5 wks. C. P. 4 weeks.	Agency, &c. Prof. McGoun.	Gifts, &c. C. P.	Agency, &c.	Gifts, &c. C. P.
4.00	Real Property Law. Prof. Marler. 6 weeks. N.B. This course will begin after the completion of Prof Marler's course to the first year.		R. P. L.		R. P. L.
5.50	Private International Law. Prof. Lafleur.	Commercial Law. Prof. R. C. Smith	P. I. L.	Comm. Law.	P. I. L.

MONDAY, 10TH MARCH, TO FRIDAY, 4TH APRIL, 4 WEEKS.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8.30	Agency, &c.	C. P.	Agency, &c.	C. P.	Agency, &c.
4.00	R. P. L.		R. P. L.		R. P. L.
5.00	Commercial Law.	P. I. L.	Comm. Law.	P. I. L.	Comm. Law.

Gifts and Wills	50 lectures.	Criminal Law	40 lectures.
Commercial Law	50 "	Procedure	40 "
Agency, &c	25 "	International	25 "
Real Property Law	25 "		
Marriage Covenants	25 "	Total	305
Minor Contracts	25 "		

In addition a short course on Medical Jurisprudence will be given on dates to be afterwards fixed.



Faculty of Medicine.

Foundation and Early History.

The Sixty-ninth Session of this Faculty will be opened on Monday, September 23rd, 1901, by an introductory lecture at 3 p.m. The regular lectures in all subjects will begin on September 24th, at the hours specified in the time-tables, and will be continued until May 25th, 1902, when the annual examination will begin.

The Faculty of Medicine of McGill University was founded in 1822 as a medical school under the name of the "Montreal Medical Institution," by Drs. W. Robertson, W. Caldwell, A. F. Holmes, J. Stephenson and H. P. Loedel—all of them at the time members of the staff of the Montreal General Hospital.

Although founded in 1822, yet no session of the "Medical Institution" was held until 1824 when it opened with 25 students; in 1844 the number of students in the Faculty was 50; in 1851, 64, with 15 graduates; in 1872-73, 154, with 35 graduates; in 1892-93, 315, with 46 graduates; in 1895-96, 419, with 90 graduates; in 1900-1901, the session just completed, 465 students were registered.

There were no sessions held during the political troubles from 1836 to 1839, and it is owing to this fact that the present is the 69th session of the Faculty. This is in reality the seventy-second session of the school, which is the direct continuation of the "Montreal Medical Institution."

In 1828 the "Medical Institution" was recognized by the Governors of the Royal Institution as the Medical Faculty of McGill University. At this time the lectures were given in a building on the site of the present Bank of Montreal.

Later the school was removed to a brick building, still standing near the corner of Craig and St. George streets.

In 1846 the lectures of the Faculty were given in the present central building of the University now occupied by the Faculty of Arts. On account of the inconvenience arising from the distance of the University buildings from the centre of the city, it was decided in 1850 to erect a Medical school building on Coté Street. This building, provided with ample accommodation for Library and Museum and furnished with a large dissecting room and two lecture rooms was occupied for the first time during the session of 1851-52, and sufficed for the wants of the Faculty until 1872-73, when the front building of the present block was provided by the Governors of the University.

In 1885 this building in the University grounds, erected by the Governors for the use of this Faculty, was found inadequate. A new building was then added, which at the time afforded ample facilities for carrying out the great aim of the Faculty,—that of making the teaching of the primary branches thoroughly practical.

Owing to the larger classes and the necessity for more laboratory teaching, the Lecture Rooms and Laboratories added in 1885 soon became insufficient in size and equipment to meet the requirements of the Faculty. The late Mr. John H. R. Molson with timely generosity came to the aid of the Faculty, and in 1893 purchased property adjoining the college grounds, and enabled the Faculty to erect new buildings and extensively alter and improve those already in use.

These wings were completed and officially opened by His Excellency, the Earl of Aberdeen, visitor of the University, January 8th, 1895. They were erected as an extension of the old ones, towards the northwest, partially facing Carlton road, and convenient to the Royal Victoria Hospital. They connected the Pathological building, a private residence acquired in 1893, with the older buildings, and comprised a large lecture room, capable of acocmmodating 450 students,

with adjoining preparation-rooms and new suites of laboratories for Pathology, Histology, Pharmacology and Sanitary Science. The laboratories, etc., in the older buildings were also greatly enlarged and improved.

On the ground floor the Library and Museum were enlarged. The original library of the building erected for the Faculty by the Governors in 1872 was furnished as a reading room for the use of students, and the extensive reference library of the Faculty was thus for the first time made available for the use of the students.

On this floor were also the Faculty room, the Registrar's office, the special museum for Obstetrics and Gynaecology, together with Professors' rooms, etc. The chemical laboratories were increased by including the laboratories formerly used by the department of Physiology.

In the basement were the janitor's apartments, cloak rooms with numerous lockers for use of students, the Lavatory, etc., recently furnished with the most modern sanitary fittings.

In less than five years the extension of the practical laboratory work and the increase in the number of students and teachers made an enlargement of the buildings almost imperative. Before, however, the want of space and equipment was very seriously felt Lord Strathcona generously provided means to meet the requirements.

The New Buildings.

The Faculty has great pleasure in announcing that the new Medical Buildings will be ready for occupation by the first of September of this year. These buildings are the gift of Lord Strathcona, who in the names of Lady Strathcona and the Honorable Mrs. Howard in 1898 contributed $100,000 towards extensions and alterations of the Medical Buildings. These buildings, the result of this munificent donation, will have more than twice the capacity of the buildings occupied during the Session of 1900-1901.

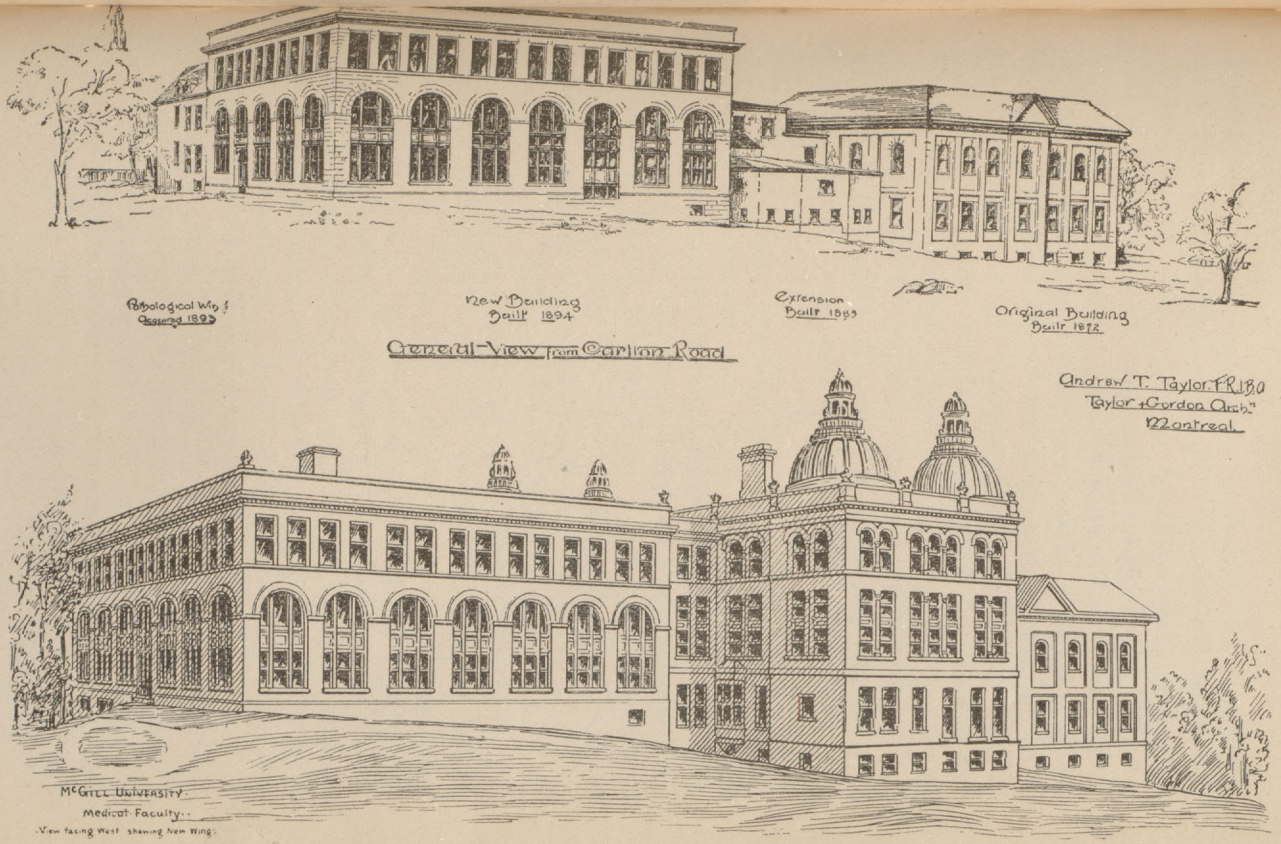
The alterations and extensions may be described as consisting of three wings. First, a Laboratory wing, which is an exact duplicate of the Molson wing erected in 1893 as part of the alterations and extensions of the building which the Faculty was enabled then to undertake through the generosity of Mr. John H. R. Molson. This wing occupies the north-east corner of the block of buildings and replaecs what was formerly the Pathology wing. A second wing connects this with the front building on the east, and the third wing connects the Molson block with the original building on the west side.

The central wings extend east and west about 70 feet and form the central feature of what is now a symmetrical block of cut stone buildings. It will be seen that the stone and brick extensions, erected by the Faculty in 1885 have been entirely removed and replaced by these substantial structures. The alterations and extensions now about completed form the larger portion of a scheme of complete reconstruction and extension which will ultimately lead to the replacing of the original stone building now remaining by a facade which will project into the University grounds to the south of the buildings and so convert the whole into a single symmetrical structure.

The new building is of four stories except in the front block, where the three original stories remain. The total length of the buildings, as will be seen by the plan, is 280 feet and the maximum width 145 feet.

The ground floor contains the lavatories, locker rooms, furnace rooms, vat rooms, rooms for stores and janitor's dwelling. And in the laboratory wing there is a large recreation room for students, a student's laboratory for pharmacology and therapeutics, a research laboratory and a private room connected with this department.

The first floor, of which a plan has been inserted, contains, to the right and left of the entrance, occupying the whole



View from Carlton Road Shewing New Wings.

floor of the original building, a students' library reading-room with accommodation for 200 readers and the pathological museum. The students' reading-room is connected with a fire-proof stack room which contains the valuable library of the Faculty. This stack room has a capacity of 40,000 volumes, the Library at present containing about 23,000. The Pathological museum on the opposite side of the hall connects with rooms beneath the seats of Lecture Room No. IV. which will be used for special collections and for curators' rooms, and four adjoining rooms for the use of professors as private rooms. On the opposite side of the hallway in the central section of the building are, the professors' common room, the Faculty room and the offices of the Registrar.

The most striking feature in the construction of the building is the large central hall or rotunda extending from the ground floor through the three stories to the roof, lighted by skylight occupying the whole length of the middle section. This hall is 70 feet long by 45 feet wide with galleries at each floor connecting the various laboratories and lecture rooms with broad staircases at each end.

The northern section contains the Chemical Laboratory, 80 feet long by 45 feet wide, and the ceiling 20 feet high, surrounded with draft cupboards, and has benches for 150 to 180 students. Connected with this room is a commodious research laboratory for advanced work in medical chemistry, and a small professor's laboratory. On the opposite side of the hall is a large lecture room with a seating capacity of from 400 to 450, together with students' reading-room for periodicals and newspapers, a small cloak room and preparation rooms connected with the lecture room.

The floor above in the two southern sections is devoted entirely to anatomy. The dissecting room occupying the top of the front building remains unchanged, and is connected on the west with a series of demonstrators' rooms, a private dissecting room and two rooms for the professor of this

department. These rooms surround Lecture Room No. II, especially arranged for lectures in Anatomy. On the opposite side of the hall, occupying the same area as the lecture room and adjoining rooms is the anatomical museum. Intervening between this and the dissecting room on the east side are, a small demonstration room, locker rooms and service rooms connected with the department of anatomy.

In the northern section are the museum for hygiene and the hygiene laboratory. These rooms extend the whole distance across the east and west wings.

On the top floor are the departments of physiology, pathology, bacteriology and histology. The department of pathology and bacteriology has a laboratory of the same dimensions as the chemical laboratory, 80 x 45 feet, especially well lighted by three large roof lights in addition to the lights on both sides. In addition to the tables and lockers provided for students in this department, there is a small demonstrating theatre and a series of small rooms for advanced work and for special purposes. These include a dark room, an incubator room, reference library and three private laboratories. On the opposite side of the hall occupying a similar floor area are the laboratories for physiology consisting of a students' laboratory which has been especially equipped this year with sets of apparatus for the practical study of the principles of physiology by the graphic method. Connecting the students' laboratory with lecture room No. I., to be used for physiology chiefly, are a series of four rooms for advanced work and special research, service rooms and store rooms.

Occupying the entire northern end of this floor is the histological laboratory with an adjoining room for private work. This laboratory is 105 feet long and affords space for the use of 150 microscopes at one time.

The laboratory wing is ventilated by a system of artificial ventilation, a powerful fan supplying each laboratory with warm fresh air, while extraction flues, to which extraction fans are attached, draw off the foul air from each room in this wing.

It will thus be seen that the new buildings of the Medical Faculty will contain four lecture rooms, three of which have a seating capacity of 250, the fourth from 400 to 450. There are five museums, namely, for Pathology, Anatomy, Obstetrics and Gynaecology, Pharmacy and Hygiene. Other collections are being made and space has been arranged for their accommodation.

Extensive locker rooms have been arranged so that at a nominal cost each student will have a locker for himself. Lockers will also be provided in connection with each of the large laboratories in which the student would be required to keep his own material, instruments, etc.—as for instance, in connection with the dissecting room and the laboratories for Pathology and Bacteriology. In addition to the large reading room of the Library and the recreation room on the ground floor of the Laboratory wing, a small reading room is provided for the use of students and controlled by the students' Medical Society, in which would be kept the daily papers, periodicals, etc.

Matriculation.

For particulars of the University Matriculation, see p. 11-22.

Intending Students are reminded that a University degree in Medicine does not always give a right to practise the profession of Medicine. It is necessary to conform with the Medical laws of the country or province in which it is proposed to begin practice. Each province in Canada at present has its special requirements for its license and in most provinces a special standard of general Education is insisted upon before beginning the study of Medicine.

The requirements for those who intend to practise in any of the Provinces of Canada, or in Great Britiain, etc, are as follows :—

A. General Council of Medical Education and Enregistration of Great Britain.

A license from this body entitles the holder to practice in England, Ireland, Scotland and all colonies except the various provinces in Canada. The Matriculation Examination in Medicine of this University, as described on pp. 11-22, is accepted by the General

Medical Council. Graduates of this University desiring to register in England are exempted from any examination in preliminary education on production of the McGill Matriculation certificate. Certificates of this University for attendance on lectures, practical work and clinics are also accepted by the various examining boards in Great Britain. To obtain a licence from the General Council it is necessary for all Canadian graduates to pass one of the examining boards of Great Britain in both primary and final subjects.

Detailed information may be obtained from one of the three registrars: Henry E. Allen, B.A., 299 Oxford St., London, W.; J. Robertson, 54 George St., Edinburgh; S. W. Wilson, 35 Dowson St., Dublin.

B. The Province of Quebec.

No University Matriculation Examination is accepted by the College of Physicians and Surgeons of this Province. Graduates in Arts of any British or Canadian University are however exempted from examination on presentation of their Diplomas.

Those who pass the Preliminary Examination described below, or Graduates in Arts who register as students in the C. P. & S., Quebec, *on beginning their studies in Medicine*, obtain on graduating from McGill University a license to practise in Quebec without further examination in any professional subject.

Graduates who have registered with the General Council of Great Britain are at present admitted to practice without examination.

The requirements for the Matriculation Examination of the Province of Quebec for 1901 are :—

LATIN.—Cæsar's Commentaries, Bks. I., II., III.—Virgil's Aeneid, Bks. I. and II.—The Odes of Horace, Bk. I., with a sound knowledge of the Grammar of the Language.

ENGLISH.—For *English-speaking* candidates.—A critical knowledge of of one of Shakspere's plays, viz., A Winter's Tale, for 1901, with English Grammar, as in Dr. Smith or Mason.

For *French-speaking* candidates.—Translation into French of passages from the first eight Books of Washington Irving's Life of Columbus, with questions on Grammar. Translation into English of extracts from Fénélon's Télémaque.

FRENCH.—For *French-speaking* candidates.—A critical knowledge of Racine's "Athalie" and La Fontaine's Fables, Bks. I., II., III., with questions on Grammar and Analysis.

For *English-speaking* candidates.—Translation into English of passages from Fénélon's Télémaque, with questions on Grammar. Translation into French of easy English extracts.

BELLES LETTRES AND RHETORIC.—Principles of the subject as in Haven's Rhetoric, or Boyd's Rhetoric and Literary Criticism. History of the Literature of the age of Pericles in Greece, of Augustus in Rome, and of the 17th, 18th and 19th centuries of England, and France.

HISTORY.—Outlines of the History of Greece and Rome, and particular knowledge of the History of Britain, France and Canada.

GEOGRAPHY.—A general view, with particular knowledge of Britain, France and North America.

ARITHMETIC.—Must include Vulgar and Decimal Fractions, Simple and Compound Proportion, Interest and Percentages, and Square Root.

ALGEBRA.—Must include Fractions and Simultaneous Equations of the First Degree.

GEOMETRY.—Euclid, Bks. I., II., III., IV. and first 20 propositions of Book VI., or the portion of plane Geometry covered by those Books. Also the measurement of the lines, surfaces and volumes of regular geometrical figures.

CHEMISTRY.—Outlines of the subject as in Remsen's Elements of Chemistry.

BOTANY.—Outlines as in Gray's "How plants grow."

PHYSICS.—Outlines as in Peck-Ganot's Physics.

PHILOSOPHY.—Elements of Logic as in Jevon's Logic; Elements of Philosophy, as in Professor Murray's Hand-Book.

The Examinations will be held in September 1901, at Quebec, and in June, 1901, at Montreal. Applications to be made to Dr. J. A. Macdonald, No. 1 Belmont Street, Montreal, or to Dr. J. P. Boulet, Quebec, who will furnish schedule giving text-books and percentage of marks required to pass in each subject.

Examination Fee, twenty dollars. Should the candidate be unsuccessful, one-half of the fee will be returned.

Of the four years' study *after* having passed the Matriculation Examination, three six months' sessions, at least, must be attended at a University, College or Incorporated School of Medicine recognized by the "Provincial Medical Board." The first session must be attended during the year immediately succeeding the Matriculation Examination, and the final session must be in the fourth year.

Students wishing to register degrees in Arts must do so before the 15th of September of the year in which they begin the study of Medicine in order to obtain a license as soon as they graduate from the University.

C. The Province of Ontario.

Every one desirous of being registered as a matriculated medical student in the register of the College of Physicians and Surgeons of this Province, except as hereinafter provided, must present to the Registrar the official certificate of having passed the "Departmental Pass Arts Matriculation Examination," and in addition Physics and Chemistry—whereupon he shall be entitled to be so registered upon the payment of twenty dollars and giving proof of his identity.

Graduates in Arts of any University in His Majesty's dominions, are not required to pass this examination, but may register their names with the Registrar of the College, upon giving satisfactory evidence of their qualifications, and upon paying the fee of twenty dollars.

A certificate from the Registrar of any chartered University conducting a full Arts course in Canada, that the holder thereof matriculated prior to his enrolment in such University, and passed the examination in arts prescribed for students at the end of the first year, shall entitle such student to registration as medical student under *The Ontario Medical Act.*

Every medical student, after matriculating, shall be registered in the manner prescribed by the Council, and this shall be held to be the beginning of his medical studies, which shall date from that registration. To become a Registered Practitioner in this province

four years' attendance at a recognized Medical School is required and a fifth year to be spent in hospital or laboratory work must elapse before the final examination is granted.

Students are examined in all the subjects of a medical curriculum by the Examining Board of the C. P. & S. of this province at three examinations, a primary (II. year), an intermediate (IV. year), and a final (V. year).

Full details may be obtained on application to Dr. R. A. Pyne, Registrar, Cor. Bay and Richmond Sts., Toronto.

D. The Province of New Brunswick.

The matriculation requirements of this province are :—

1. English Grammar, Composition, Literature and Rhetoric.
2. Arithmetic, including vulgar and decimal fractions, extraction of the square and cube root and mensuration.
3. Algebra, to the end of quadratic equations.
4. Geometry, first three books of Euclid.
5. Latin, first two books of Virgil's Æneid, or three books of Cæsar's Commentaries, translation and grammar.
6. Elementary Mechanics of solids and fluids, comprising the elements of statics, dynamics and hydrostatics.
7. Elementary Chemistry.
8. Canadian and British History, with questions in modern geography.
9. Translations and Grammar of any two of the following languages: *Greek, French* and *German.*

In order to pass, a candidate must make an average of sixty per cent., with a minimum of forty per cent. in any one subject.

Dr. Stewart Skinner, of St. John, N.B., is the Registrar of the Council of Physicians and Surgeons of this province, and will furnish details on application.

To become registered as a practitioner in this province it is now necessary to pass examinations in all the Professional Branches.

E. Province of Nova Scotia.

The regulations of the Provincial Medical Board of this province for 1900-1901 are as follows :—

Preliminary Examination and Registration.

1. No person shall begin or enter upon the study of medicine, for the purpose of qualifying himself to practice the same in this province, unless he first produces to the Registrar a certificate from the examiners appointed by the Board to show that he has passed the Preliminary Examination in the subjects prescribed by the Rules and Regulations of the Board, or evidence of having passed such equivalent examination as is accepted by the Board, and unless he causes his name to be forthwith entered in the Medical Students' Register as hereinafter specified (Rule 15).

2. No candidate shall be admitted to the Preliminary Examination unless at least fourteen days previous to such examination he has given notice to the Registrar of the Board of his intention to present himself for such examination, and unless he has produced to the Registrar satisfactory evidence that he has completed his sixteenth year and has paid a fee of ten dollars ($10.00) to the Registrar.*

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* This fee shall not be returned in case of failure.

3. The Preliminary Examination† will embrace the following subjects, viz. :—

(1) ENGLISH. (*a*) *Language*: Grammar, Analysis, Parsing.
(*b*) *Rhetoric and Composition* including an essay on one of several set subjects from prescribed authors.‡
(*c*) *Literature*: History of English Literature ; critical study of prescribed authors.†

(2) ARITHMETIC. Complete.

(3) ALGEBRA. Simple Rules; Rules for the treatment of Indices ; Surds; Extraction of Square and Cube Roots ; Equations of the First Degree: Quadratic Equations of one unknown quantity.

(4) GEOMETRY. Euclid, Books I., II., III., with easy deductions.

(5) HISTORY AND GEOGRAPHY. British and Canadian History with questions in General Geography.

(6) LATIN. (*a*) *Translation* from prescribed books, with questions arising out of those books, and translation of easy passages not taken from such books.*
(*b*) *Grammar.*
(*c*) *Composition.*

(7) One of the following :

GREEK. (*a*) *Translation* from prescribed books, with questions arising out of those books, and translation of easy passages, not taken from such books.†
(*b*) *Grammar*, as in Elementary Grammars.
(*c*) *Composition*, as in Frost's Greek Primer.

FRENCH. *Translation* from prescribed books with *Grammar* Questions limited to the Accidence, and based upon the passages prescribed for translation.‡

GERMAN. *Translation* and *Grammar*, as under French.‖

4. Examinations take place twice a year, beginning on the first Thursday in May and the last Thursday in August.

On the same dates local examinations will be held, on application at Sydney, C.B., at Pictou, N.S., and at Yarmouth, N.S. Candidates taking local examinations are required to pay an additional fee of $2.00.

5. Except where otherwise specified, the books prescribed by the Council of Public Instruction for the course leading to the Grade B or High School Junior Leaving Examinations are recommended.

6. In order to pass, a candidate must make fifty per cent. of marks in each subject.

7. If fifty per cent. is made in all subjects but one, and if in that subject the candidate shall have made at least 25 per cent. he may begin study, and attend for one medical year at any medical college recognized by the Board, and thereafter present himself for examination in that subject alone, without payment of any additional fee, except in cases of candidates taking local examinations, who will be required to pay the usual $2.00 fee for such examination.

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† For copies of previous examination papers ($1.00 one entire set) apply to Registrar Provincial Medical Board.

English authors for 1901. DeQuincy, *Joan of Arc* ; Tennyson, *The Princess* ; Dickens, *Christmas Carol* ; Scott, *Lady of the Lake.*

* Latin for 1901. *Cæsar*, De Bello Gallico, Book V, with *Vergil*, Æneid, Book II.

† Greek for 1901. *Xenophon.*, Anabasis, Book III.

‡ French for 1901. *Voltaire*, Charles XII, Books I, II, III.

‖ German for 1901. *Buchheim*, German Reader, Part I.

8. A candidate failing in more than one subject, or failing to make 25 per cent. in any subject, may not begin professional study; he will, however, at any subsequent examination, be exempted from all subjects in which he has already passed and shall for such examination pay an additional fee of $5.00, (or $7.00 if a local examination be taken).

9. Certificates will be issued to successful candidates, showing the subjects in which they have passed, and the extent to which their knowledge of these subjects was tested.

10. Candidates who have passed the above examination will be admitted without further preliminary examination at all Canadian and American Colleges.

11. This examination also satisfies the requirements of the General Medical Council of Great Britain as to the preliminary examination which must be passed by persons wishing to register as medical students, provided the candidate shall have passed in all subjects at one examination.

EXEMPTIONS.

12. Graduates in Arts or Science of any recognized College or University, also persons who have passed the entrance examination of the Nova Scotia Barristers' Society, are not required to submit to this examination.

13. The Medical Board will also recognize *pro tanto* the following examinations :

(1) The Matriculation or the Sessional Examinations of any chartered University or College approved by the Board, including McGill University.
(2) The Examinations for Teachers' Licenses, Grade A or B, of Nova Scotia, with 50 per cent. in required subjects.
(3) The Examinations for Junior or Senior High School Leaving Certificates of Nova Scotia, with 50 per cent. in required subjects.
(4) The Examinations for Honour, First or Second Class Ordinary Diplomas, as issued by the Prince of Wales College, P.E.I., with 50 per cent. in required subjects.
(5) The Examinations for First or Second Class Teachers' Licenses of Prince Edward Island, with 50 per cent. in required subjects.
(6) The Examinations for First Class,. or Grammar School Licenses of New Brunswick, with 50 per cent. in required subjects.
(7) The Examinations for corresponding Licenses or Leaving Examination Certificates issued by the Education departments of the other provinces of Canada, with 50 per cent. in required subjects.
(8) The Matriculation or Preliminary Examinations of any Medical Licensing Board or Council authorized by law in His Majesty's Dominions, with 50 per cent. in each subject.

14. After passing his preliminary examination, the medical student may then enter upon his professional course at any University, Medical School or College approved by the Board.

REGISTRATION.

15. *Immediately* after entering upon his course every person engaged in the study of medicine for the purpose of qualifying himself to practice in the Province of Nova Scotia shall forthwith cause to be entered in the register of the Board kept by the Registrar, and called the Medical Students' Register, his name, age, place of residence, date and particulars of his preliminary examination, and place and date of his commencement of the study of Medicine.

16. The fee for such registration is ten dollars ($10.00), except that candidates who already have paid $10.00 for the Matriculation Examination are not required to pay any additional fee.

17. Every student must spend a period of at least four years in actual professional study subsequent to his having passed the Preliminary or Matriculation Examination and being registered as a medical student; and the prescribed period of study shall include four collegiate sessions of at least eight months duration each year.

18. Candidates for the License of this Board will be required subsequent to their registration as Medical Students, to pass three examinations to be known as the First, Second, and Third Professional Examinations.

19. These examinations will be held annually beginning on the third Wednesday in June of each year. The examinations will be partly in writing, partly oral and practical.

Dr. A. H. W. Lindsay, Halifax, is Registrar of the Provincial Board.

Prince Edward Island.

The requirements of this province are the same as for New Brunswick and has reciprocity with both New Brunswick and Nova Scotia. The subjects of the examination are as follows :—

1. English Grammar, Composition, Literature and Rhetoric.
2. Arithmetic, including vulgar and decimal fractions and extractions of the square and cube root and mensuration.
3. Algebra, to the end of quadratic equations.
4. Geometry, first three books of Euclid.
5. Latin, first two books of Virgil's Æneid, or three books of Cæsar's Commentary, translation and grammar.
6. Elementary Mechanics of solids and fluids, comprising the elements of statics, dynamics and hydrostatics, and elementary chemistry.
7. Canadian and British History, with questions in modern geography.
8. Translation and grammar of any two of the following subjects: *Greek, French, German.*

Fifty per cent. of the marks in every subject shall be required for a pass, and 75 per cent. for honours.

The Registrar of the Medical Council is Dr. Richard Johnson, Prince Street, Charlottetown.

Province of Manitoba.

The matriculation examination of McGill University is accepted by this province. The province holds an examination twice per year. The following are the fixed requirements:—(1) Latin, (2) Mathematics, (3) English, (4) History, (5) Botany, (6) Physics. Subjects 1, 2, 3, 4 the same as required for the Arts Matriculation of Manitoba University, Parts I. and II., and the same standard shall be required to enable the candidate to pass.

Details of this examination can be obtained from the Registrar of the University of Manitoba.

British Columbia.

The College of Physicians and Surgeons of this province does not hold an examination in general education but accepts the examinations recognized by the various boards and universities of the Dominion.

This province examines all candidates for a license in the professional branches, both primary and final. For dates of these examinations see almanack at beginning of the Calendar. Dr. C. J. Fagan, Victoria, B.C., is the Registrar and Secretary of the Council.

North-West Territories.

The College of Physicians and Surgeons of the North-West Territories has no standard of matriculation. It accepts that of any Canadian Medical Board or University.

According to the Amended Medical Ordinances (1900), a licenciate of any province in Canada may register and practice in the North-West Territories on payment of the sepcial fee and without examination. The College reserves the right of examining graduates of all Universities.

Hugh W. Bain, M.D., of Prince Albert, Saskatchewan, is the Registrar. The dates fixed for examinations will be found in the almanack.

Newfoundland.

The Newfoundland Medical Board has a standard of preliminary education equivalent to that required by the General Council of Medical Education of Great Britain.

The examinations for 1900-01 will consist of :—

Compulsory.

ENGLISH LANGUAGE.—Including grammar, composition and literature.
ARITHMETIC.—Including vulgar and decimal fractions, and the extraction of the square root.
ALGEBRA.—To the end of simple equations.
GEOMETRY.—Euclid, books i, ii, iii, with easy questions on the subject matter of the same.
LATIN.—Including grammar, translation from specified authors, and translation of easy passages not taken from such authors.†
ELEMENTARY MECHANICS of Solids and Fluids.‡

Optional.§

HISTORY OF BRITISH AMERICA.—With questions in modern geography.
HISTORY OF ENGLAND.—With questions of modern geography.
FRENCH.—Translation and grammar.
GERMAN.—Translation and grammar.
GREEK.—Translation and grammar.||
MAGNETISM AND ELECTRICITY.
CHEMISTRY.

(*a*) The Board will not, in future, accept any certificate of pass in matriculation or preliminary examination in general education, unless the whole of the subjects included in the matriculation or preliminary examination required by the Council for registration of students of medicine have been passed at the same time.

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† Latin for 1901. *Cæsar* Gallic War, Book I, or *Virgil*, Æneid, Book I.

‡ As in Blackie's Elements of Dynamics, or an equivalent.

§ In communicating with the Registrar, students will please state the optional subject chosen.

|| Greek for 1901, *Xenophon*, Anabasis, Book I; or Hellenica, Book I.

(*b*) Provided that a certificate of having passed a University examination required for graduation in Arts, or a senior or higher local University examination, or an Intermediate grade examination of the Council of Higher Education of Newfoundland, or of the Grade I. license for teachers of Newfoundland, wherein the specified subjects of general education are included, may be recognized for the purpose of registration.

In order to pass a candidate must make fifty per cent. of marks in each subject.

Certificates will be issued to successful candidates showing the subjects in which they passed, and the extent to which their knowledge of these subjects was tested.

Candidates who have passed the above examination will be admitted without further preliminary examination at all Canadian and American colleges.

TEXT BOOKS.—Except when otherwise specified the books prescribed by the Council of Higher Education are recommended.

TIME TABLES FOR SESSION 1900-1901.

Time Tables for the Session of 1901-02 will be issued to each student with his Lectu Room ticket on enregistration.

TIME TABLE OF FIRST YEAR LECTURES.

LECTURES.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Lecture Theatre.
Anatomy	9	9	9	9	9	.....	Autumn & Wint Terms No. 1.
Physiology.	4	4	.....	4	3	.....	Winter & Sprii Terms No. 1.
Chemistry	2	.....	.....	2	2	.....	Autumn Term No. III.
	.....	.....	2	.....	2	.....	Winter & Spric Terms No. III.
Biology	.....	2	.....	.....	.....	9	Autumn Term No. I.
Bacteriology	.....	2	.....	.....	.....	.....	Spring Term.
Laboratory Work.							
Practical Anatomy	10–1	10–1	10–1	10–1	10–1	9–1	
*Prac. Physiology	.....	.....	3–5	.....	.....	.....	
*Prac. Histology	2–4	.....	.....	.....	4–6	9–12	Winter and Spring
*Prac. Chemistry	10–12	10–12	10–12	10–12	.....	.....	Winter Term.
*Prac. Biology	.....	3–5	.....	.....	3–5	.....	Biological Labo tory Art Bld'g. Autumn Term.
*Bacteriology	.....	3–5	.....	.....	3–5	.....	Spring Term.

* Class taken in two divisions.

TIME TABLE OF SECOND YEAR LECTURES.

LECTURES.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Lecture Theatre.
Anatomy	9	9	9	9	9	.....	Autumn & Win Terms No. I.
Physiology	2	.....	2	.....	2	.....	No. I.
Chemistry	.....	3	3	.....	3	.....	No. III.
Pharmacology and Therapeutics	4	.....	4	.....	4	.....	No. I.
Laboratory Work.							
Practical Anatomy	10–1	10–1	10–1	10–1	10–1	10–1	Autumn & Win Terms.
†Prac. Chemistry	9–11	9–11	9–11	9–11	9–11	9–11	Spring Term.
†Prac. Physiology	2–4	.....	.....	2–4	.....	.....	
†Prac. Histology	.....	4–6	.....	4–6	.....	9–12	Autumn Term.

† Half the class only.

NOTE.—Students of the second year when not engaged in the laboratories are required to attend the Patients' Clinics (only) of M. G. H. or R. V. H. 11 a.m lo 1 p.m. ; attendance to average two hours per we Certificates required for graduation.

TIME TABLE OF THIRD YEAR LECTURES.

LECTURES.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Lecture Theatre.
Gynæcology	9			9			III
Medicine		10	*11-12	10			III
Surgery	10		*12-1		10		III
Jurisprudence and Mental Diseases	11				11		I
Pharmacology and Therapeutics		11		11			I
General Pathology	5		9				III—Autumn Term
	5	9	9		9		III—Jan.—March
Hygiene and Bacteriology		9			9		III—Autumn Term
	5	9	9		9		III—March—June
Morbid Anatomy						§9-11	
Clinical Medicine	2 RVH	1 p.m. MGH		2 p.m. RVH	1 MGH		
Clinical Surgery	1 p.m. MGH	2 RVH		1 p.m. MGH	2 p.m. RVH		
Practical Pathology	4-6	4-6		4-6	4-6		Path. Lab. Winter
Clinical and Sanitary Chemistry	4-6	4-6		4-6	4 6		Chem. Lab. Autumn
Bacteriology and Hygiene	4-6	4-6		4-6	4-6		Path. Lab. Autumn
Clinical Microscopy	4-6	4-6		4-6	4-5		Path. Lab. Spring
Operative Surgery	4-6	4-6		4-6	4-6		Anat. Lab. Spring

* Alternate weeks, M.G.H. and R.V.H. † Optional. ‡ Classes taken in groups.
§ Weekly for alternate months R.V.H. and M.G.H.

TIME TABLE OF FOURTH YEAR LECTURES.

LECTURES.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Lecture Theatre.
Obstetrics		11	11		11		III
Medicine		10	‡11-12	10			III
Surgery	10		‡12-1		10		III
Med. and Sur. Pathology				11			III
Ophthalmology	11						III
Out Patients' Clinics	11-12	11-12	11-12	11-12	11-12		R.V.H.
	12-1	12-1	12-1	12-1	12-1	11-12	M.G.H.
Clinical Medicine	1	1			1		R.V.H.
				1			M.G.H.
Clinical Surgery	2	1		2	1		M.G.H.
							R.V.H.
Gynæcological Operations		11					R.V.H.
Clinical Ophthalmology	4		4				M.G.H.
		4			4		R.V.H.
Gynæcological Clinics		4		4			M.G.H.
	11			4			R.V.H.
Morbid Anatomy						§9-11	
Clinical Obstetrics						1-2.30	Maternity Hospital.
Dermatological Clinic			2			11	M.G.H.
Genito-Urinary Clinic						3	R.V.H.
Diseases of Children Clinic		4			4		M.G.H.
Laryngology	4				4		M.G.H.
			3				R.V.H.
Medical and Surgical Anatomy	5						Autumn Term
Children's Diseases					5		Winter Term

* In groups of eight or ten † In groups of four. ‡ Alternate weeks M.G.H. and R.V.H.
§ Weekly for altesnate momths M.G.H. and R.V.H.
Special time table published for the Clinics whith are attended in groups.

II.

COURSES OF LECTURES.

The Corporation of the University, on the recommendation of the Faculty of Medicine, in 1894, consented to the extension of the courses of lectures in medicine over a period of about nine months instead of six.

By this means, (1) The students of the primary years have a more ample opportunity of becoming acquainted, by laboratory work, with those branches of study which form the scientific basis of their profession, and (2) the final students will be able to utilize to better advantage the abundance of clinical material provided in the two Hospitals.

By this arrangement the actual number of didactic lectures per session was decreased, but a corresponding increase was made in the amount of tutorial work and individual teaching in the laboratories for Chemistry, Physiology, Anatomy, Pathology and Bacteriology as well as giving more Montreal General Hospitals a greater number of ward classes were also made possible during the session.

The Faculty expects, by thus increasing the time that the different professors, lecturers and demonstrators devote to each student, to accomplish two very important ends: First, to do away with the injurious effects which result from attempting to condense the teaching of medicine and surgery into four or even five sessions of six months; Second, to give each student a sounder and more thoroughly practical knowledge of his profession than could be obtained by attending during even five sessions of six months each.

Anatomy.

PROFESSOR, FRANCIS J. SHEPHERD.
LECTURER, J. A. SPRINGLE.
LECTURER AND SENIOR DEMONSTRATOR, J. G. McCARTHY.

DEMONSTRATORS,
- R. TAIT MACKENZIE.
- J. A. HENDERSON.
- J. J. ROSS.
- A. E. ORR.

ASSISTANT DEMONSTRATORS,
- A. T. BAZIN.
- H. M. CHURCH.
- W. G. REILLY.
- R. A. WESTLEY.

Anatomy is taught in the most practical manner possible, and its relation to Medicine and Surgery fully considered. The lectures are illustrated by the fresh subject, moist and dry preparations, sections, models and plates, and drawings on the blackboard.

A course of practical demonstrations in Medical, surgical and Topographical Anatomy is also given in the final year of the course.

The department of *Practical Anatomy* is under the direct control and personal supervision of the Professor of Anatomy, assisted by his staff of Demonstrators.

The methods of teaching are similar to those of the best European schools, and Students are thoroughly grounded in this branch.

Every student must be examined *at least* three times on each part dissected, and no certificate is given unless the examinations are satisfactory.

Special Demonstrations on the Brain, Thorax, Abdomen, Bones, etc., are frequently given. Prizes are awarded at the end of the Session for the best examination on the fresh subject.

The Dissecting Room is open from 9 a. m. to 6 p. m. Abundance of material can be obtained, owing to the Anatomy Act of the Province of Quebec.

Chemistry.

PROFESSOR, GILBERT P. GIRDWOOD.

The course of this subject is carefully graded. Students of the first year receive lectures on Chemical and Physiological Physics and the general principles and theories of the science. In the second year the course on chemistry is extended to embrace its application to physiology and medicine, and includes a course in Organic Chemistry. The lectures are fully illustrated by experiments, for which the department is equipped with all modern Lecture-room apparatus.

Practical Chemistry.

PROFESSOR R. F. RUTTAN,

ASSISTANT DEMONSTRATORS, W. K. BROWN, A. T. IRVINE,

LABORATORY ASSISTANT, CHARLES STEVENSON.

Laboratory instruction in practical chemistry is given during each of the first three years of study throughout one term.

The first year's course illustrates the general principles of chemical action and the properties of typical elements. During the second year the course will include methods of qualitative analysis and the detection of poisons. In the third year a course of clinical and sanitary chemistry is given, in which the student is made familiar with the application of chemistry to the diagnosis and prevention of disease. Special attention is directed to instructing the student in making accurate notes of his experiments and his conclusions. These notes are examined daily and criticised.

Physiology.

PROFESSOR, WESLEY MILLS.

LECTURER, W. S. MORROW.

DEMONSTRATORS, J. W. SCANE AND A. A. ROBERTSON.

The purpose of this course is to make Students thoroughly acquainted, as far as time permits, with modern Physiology; its methods, its deductions, and the basis on which the latter rest. Accordingly a full course of lectures is given, in which

the physical, the chemical and other aspects of the subject receive attention.

In addition to the use of diagrams, plates, models, etc., every department of the subject is experimentally illustrated, The experiments are mostly free from elaborate *technique*, and many of them are of a kind susceptible of ready imitation by the Student. The laboratory work for students has been greatly increased and during the session of 1901-1902 apparatus to the value of over three thousand dollars will be added to the students' laboratory.

Laboratory work for Senior Students :—

(1.) During a part of the Session there will be a course on Physiological Chemistry, in which the Student will, under direction, investigate food stuffs, digestive action, blood, and the more important secretions and excretions, including urine. All the apparatus and material for this course will be provided.

(2.) The remainder of the Session will be devoted to the performance of experiments which are unsuitable for demonstration to a large class in the lecture room, or that require the use of elaborate methods, apparatus, etc., together with such as each individual of the class can himself conduct.

Laboratory work for Junior Students :—

This will be somewhat similar to the course for senior students, but simpler and anatomico-physiological rather than chemical; like the work for second year students, its main object will be the illustration of important physiological principles.

Histology.

PROFESSOR, GEO. WILKINS.
LECTURER, N. D. GUNN.
ASSISTANT DEMONSTRATORS, HUGH B. FRASER. WALTER B. FISKE. E. R. BROWN. DAVID PATRICK.

The teaching of Histology and Microscopical Methods is spread over two years. During both years practical instruc-

tion will be given upon the preparation and mounting of specimens. Students will also be required to make drawings of the specimens prepared by them.

For the first year students, work will commence immediately after the Christmas holidays and continue until the end of the session. The course will consist of laboratory work and demonstrations, with occasional lectures upon elementary and systematic histology up to and including the digestive system. At the end of the session a practical examination will be held on the work done.

The second year students will commence work with the beginning of the session and continue until the Christmas holidays. The course will be a continuation of the first year's work, completing the subject of histology. Demonstrations will be given embracing the whole subject. The examinations will be held at the end of the course and will be both written and practical, and cover the whole of histology.

Pharmacology and Therapeutics.

PROFESSOR, A. D. BLACKADER.

DEMONSTRATORS, { R. A. KERRY. / J. W. HALSEY.

The lectures on this subject are graded in the following manner :

During the primary course attention is directed chiefly to Pharmacology, including the important chemical and physical properties of the various drugs, and a brief consideration of their physiological action ; therapeutics is considered only in outline. A complete museum of Materia Medica affords the student opportunity for making himself acquainted with the drugs themselves. During the session a course of demonstrations on Practical Materia Medica and Pharmacy is given.

During the final course the physiological action of drugs is dwelt upon at length, and attention is given to the therapeutic application of all drugs and remedial measures. Pre-

scription writing and the various modes of administering drugs are explained and illustrated. During the course a series of lectures will be delivered in the theatres of the hospitals on special cases or groups of cases, illustrating important points in both general and special Therapeutics.

Medicine.

PROFESSOR, JAMES STEWART.

ASSISTANT PROFESSORS, F. G. FINLEY. H. A. LAFLEUR. C. F. MARTIN.

DEMONSTRATOR, S. RIDLEY MACKENZIE.

While the lectures on this subject are mainly devoted to Special Pathology and Therapeutics, no opportunity is lost of illustrating and explaining the general laws of disease. With the exception of certain affections seldom or never observed in this country, all the important internal diseases of the body, except those peculiar to women and children, are discussed, and their Pathological Anatomy illustrated by the large collection of morbid preparations in the University Museum, and by fresh specimens contributed by the Professor of Pathology.

The College possesses an extensive series of plates and models illustrative of the Histological and Anatomical appearances of disease, and the wards of the General and Royal Victoria Hospitals afford the lecturer ample opportunities to refer to living examples of very many of the maladies he describes, and to demonstrate the results of treatment.

Clinical Medicine.

PROFESSOR, JAMES STEWART.

ASSOCIATE PROFESSORS, F. G. FINLEY AND H. A. LAFLEUR.

ASSISTANT PROFESSOR, C. F. MARTIN.

LECTURERS, G. GORDON CAMPBELL. W. F. HAMILTON.

The instruction in Clinical Medicine is conducted in the theatres, wards, out-patient rooms and laboratories of the Royal Victoria and Montreal General Hospitals.

The courses include :—

I. The reporting of cases by every member of the Graduating Class, a certain number of beds being assigned to each student.

II. Bedside instruction for members of the Graduating Class.

III. Two Clinics weekly in each hospital.

IV. Tutorial instruction for the Junior Classes, in the wards and out-patient rooms of both hospitals.

V. Instruction in Clinical Chemistry and Bacteriology.

Surgery.

PROFESSOR, THOMAS G. RODDICK.

LECTURERS, J. M. ELDER. A. E. GARROW.

This course consists of the Principles and Practice of Surgery and Surgical Pathology, illustrated by a large collection of preparations from the Museum, as well as by specimens obtained from cases under observation at the Hospitals. The greater part of the course, however, is devoted to the Practice of Surgery, in which attention is constantly drawn to cases which have been observed by the class during the session. The various surgical appliances are exhibited, and their uses and application explained. Surgical Anatomy and Operative Surgery form special departments of this course.

Clinical Surgery.

PROFESSOR, JAMES BELL.

ASSOCIATE PROFESSOR, GEORGE E. ARMSTRONG.

LECTURERS, J. A. HUTCHISON. J. M. ELDER. A. E. GARROW.

DEMONSTRATOR, KENNETH CAMERON.

The teaching in Clinical Surgery is conducted at the Montreal General and Royal Victoria Hospitals.

I. In the amphitheatre of each of these Hospitals, demonstrations are given and operations are performed before the senior and junior classes on alternate days.

II. Small ward classes of about ten men in each are taken through the wards by the surgeon in attendance, and instruction given at the bedside concerning the nature and management of surgical cases, in each hospital, at least once per week.

III. Beds are assigned to students in rotation, and each student is required to carefully study and report cases and to assist in the surgical dressing of the same. Certificates of case reporting are given, and are essential to graduation.

IV. In the Out-patient Department students have an exceptionally good opportunity to study a great variety of injuries, to witness operations in minor surgery, to come into personal contact with patients and to take part in the application of a variety of surgical dressings and appliances.

Obstetrics and Diseases of Infants.

PROFESSOR, J. CHALMERS CAMERON.
LECTURER, D. J. EVANS.
ASSISTANT DEMONSTRATORS, T. P. SHAW. JAMES BARCLAY.

This course will embrace : (1) Lectures on the principles and practice of the obstetric art, illustrated by diagrams, fresh and preserved specimens, the artificial pelvis, complete sets of models illustrating deformities of the pelvis, wax preparations, bronze mechanical pelvis, etc. (2) Bedside instruction in the Montreal Maternity, including external palpitation, pelvimetry, the management and after-treatment of cases. (3) A complete course on obstetric operations with the phantom and preserved foetuses. (4) The diseases of infancy. (5) A course of individual clinical instruction at the Montreal Maternity.

Arrangements have been made for a graded course in Obstetrics, instruction being given separately to third year and final students.

Particular attention is given to Clinical instruction, and a Clinical examination in Midwifery similar to that held in

Medicine and Surgery now forms part of the final examination.

A short course of lectures on diseases of infancy is given, supplemented by Clinical demonstration and ward work.

Gynæcology.

PROFESSOR, WM. GARDNER.
LECTURER, F. A. M. LOCKHART.
DEMONSTRATORS, J. D. CAMERON. W. W. CHIPMAN.

The didactic course is graded, and consists of from forty to forty-five lectures given at intervals alternating with the lectures of Obstetrics and extending throughout the session. The anatomy and physiology of the organs and parts concerned are first discussed. Then the various methods of examination are fully described, the necessary instruments exhibited, and their uses explained.

The diseases peculiar to women are considered as fully as time permits, somewhat in the following order:—Disorders of Menstruation; Leucorrhoea; Diseases of the External Genital Organs; Inflammations, Lacerations and Displacements of the Uterus; Pelvic Cellulitis and Peritonitis and Inflammations of the Ovaries and Fallopian Tubes; Benign and Malignant growths of the Uterus; Tumors of the Ovary; Diseases of the Bladder and Urethra. The lectures are illustrated as fully as possible by drawings and morbid specimens.

Clinical teaching, including out-patient and bed-side instruction, is given at both Royal Victoria and Montreal General hospitals by Professor Gardner and Doctors Lockhart, Chipman and Cameron. A large amount of Clinical material is thus available for practical instruction in this department of medicine. Numerous operations are done before the class, and made the subject of remarks. In addition to the ward-patients, each hospital conducts a large out-patient Gynaecological Clinic, to which advanced students are admitted in

rotation and instructed in digital and bi-manual examination and in the use of instruments for diagnosis.

Particular attention is thus given to Clinical instruction, and a Clinical examination in Gynaecology similar to that held in Medicine and Surgery now forms part of the final examination.

Medical Jurisprudence.

PROFESSOR, GEO. WILKINS.

This course includes Insanity, the subject being treated of in its Medical as well as Medico-Legal aspects. Special attention is devoted to the subject of blood stains, the clinical microscopic and spectroscopic tests for which are fully described and shown to the class. The various spectra of blood in its different conditions are shown by the Microspectroscope, so well adapted for showing the reactions with exceedingly minute quantities of suspected material. Recent researches in the diagnosis of human from animal blood are alluded to. In addition to the other subjects usually included in a course of this kind, Toxicology is taken up. The modes of action of poisons, general evidence of poisoning and classification of poisons are first treated of, after which the more common poisons are described, with refernce to symptoms, post-mortem appearance and chemical tests. The post-mortem appearances are illustrated by plates, and the tests are shown to the class. A series of demonstrations and Clinics will be given by Prof. Johnston on the Medico-Legal cases arising out of the coroner's court, as well as those in the Montreal General Hospital. In this way Students will have practical clinical instruction in methods of Medico-Legal investigation in civil as well as in criminal cases.

An optional practical course in Legal Medicine, open to students who have fulfilled the necessary requirements in Legal Medicine, will be given by Dr. Johnston. In connection with this is a series of demonstrations and clinics on the medico-legal cases of the Coroner's Court and those arising out of cases in the Montreal General Hospital. A

special certificate will be given by the Faculty to those who pass the examination held in connection with this course.

A course open to graduates in Medicine leading to the Diploma of Legal Medicine is given under the Department of Medical Jurisprudence in co-operation with other departments in the Faculty. (See Post-Graduate Instruction, p. 277.)

Ophthalmology and Otology.

PROFESSOR, F. BULLER.

LECTURERS, J. J. GARDNER. J. W. STIRLING.

DEMONSTRATOR, W. G. M. BYERS.

This will include a course of twenty-five lectures on diseases of the Eye and Ear, both didactic and clinical. In the former, the general principles of diagnosis and treatment will be dealt with, including three lectures on the errors of refraction and faults of accommodation. At the clinical lectures given in the Hospitals, cases illustrative of the typical forms of ordinary disease of the Eye and Ear will be exhibited and explained to the class. In the out-patients' department of each Hospital students have excellent opportunities of gaining clinical experience.

Biology.

D. P. PENHALLOW, PROFESSOR OF BOTANY.
E. W. MACBRIDE, " ZOOLOGY.

The course in elementary Biology is designed to prepare for special study in medical subjects. Under the supervision of the professors of Botany and Zoology it will be given during the autumn term—zoology first eight weeks; botany, last four weeks.

A.—Animal Biology.

The Course in Animal Biology will discuss the fundamental properties of protoplasm ; the principles of the formation of tissues; the formation of organs; an outline of vertebrate structure and function, as exemplified by Paramoecium and Vorticella, Hydra, Lumbricus and the Dog-fish.

Two lectures and one laboratory period each week.

B.—Plant Biology.

The Course in Plant Biology will deal chiefly with the general properties of cytoplasm ; the structure and nature of the plant cell; movement; nutrition; respiration; fixation of carbon; division of labor and origin of organs; evolution of plant forms. These principles will be illustrated in their more simple forms by a Myxomycete, Pleurococcus, Spirogyra and Oedogonium, Fucus, Saccharomyces and Pteris.

Two lectures and one demonstration each week.

Pathology.

PROFESSOR, J. G. ADAMI.
LECTURER, A. G. NICHOLS.
DEMONSTRATORS, D. D. MACTAGGART. D. P. ANDERSON.
ASSISTANT DEMONSTRATOR, D. A. E. ARCHIBALD.
FELLOWS, W. W. FORD AND J. MCCRAE.

The following courses constitute the teaching on this subject :—

1. A course of General Pathology for Students of the Third Year (optional for those of the Fourth). Lectures are delivered twice weekly throughout the year.

2. A course of demonstrations in the performance of Autopsies for Students of the Third Year. The demonstrations are held once a week, from October until Christmas.

3. Demonstrations upon the Autopsies of the week for Students of the two final years. These are given during the session by Dr. Adami at the Royal Victoria Hospital, and by Dr. Wyatt Johnston at the General Hospital.

Practical Courses.

4. The performance of autopsies. Each student is required to take an active part in at least six autopsies. The autopsies are conducted at the General and Royal Victoria Hospitals by the Pathologists of the Hospitals and their assistants. In addition to the actual performance of the *sectio cadaveris*, students are expected to attend the practical instruction given

in connection wtih each autopsy, in the method of preparation and microscopic examination of the removed tissues, so as to become proficient in methods of preparation, staining and mounting.

5. A practical course in Morbid Histology for Students of the Third Year. This class is held once a week during the winter months. Six sections are as a rule distributed at each meeting of the class so that each student obtains a large and representative series of morbid tissues, and upon an average twenty minutes are devoted to the description and examination of each specimen. Laboratory fee to cover cost of slides, reagents, microscope, etc., $5.

6. A course of demonstrations upon Morbid Anatomy (Museum specimens) once weekly during the winter months, for students of the Fourth Year.

In addition to the above the staff of the department give instruction to the more advanced students who desire to undertake any special work in the laboratories. Classes in clinical pathology and microscopy are given from time to time at the Pathological Laboratory and at the General and Royal Victoria Hospitals under the direction of the Professors of Clinical Medicine. In connection with this department, two researches and teaching fellowships have been established; one by the Faculty of Medicine and one by the Governors.

Department of Public Health and Preventive Medicine.

PROFESSOR, ROBT. CRAIK.

SANITATION AND PREVENTIVE MEDICINE, PROF. ROBT. CRAIK. PROF. WYATT JOHNSTON.

SANITARY CHEMISTRY, PROF. R. F. RUTTAN.

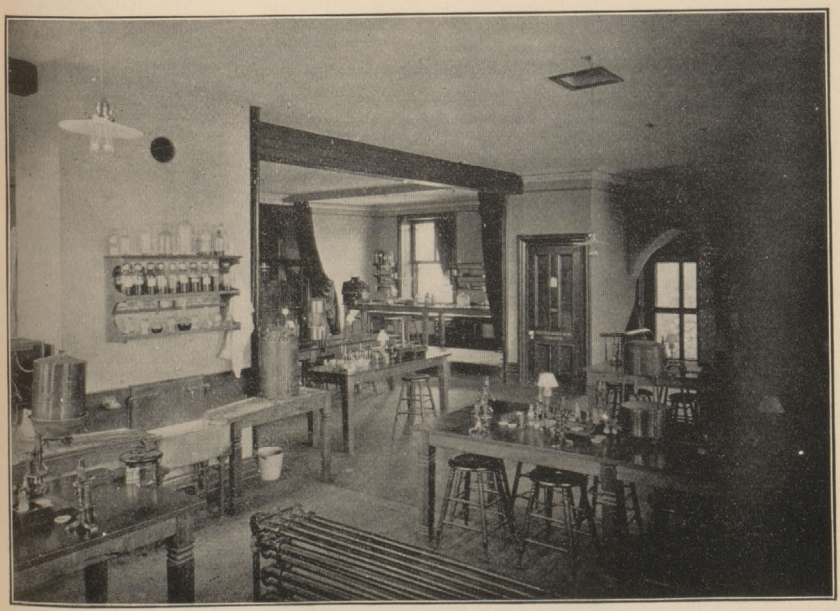
BACTERIOLOGY, PROF. J. G. ADAMI.

DEMONSTRATORS, A. J. WILLIAMS. H. B. YATES.

The Department of Public Health and Preventive Medicine has, owing to its endowment by Sir Donald A. Smith, been made one of the most important subjects of the third year.



Medical Buildings.—Laboratory of Hygiene.



Medical Buildings.—Bacteriological Laboratory.

The instruction will consist of two lectures per week for the whole session. A systematic course in Bacteriology and Preventive Medicine, including Serum Therapy, will be followed by courses on the sanitary relations of water, soil, food, and air, the use and relative value of disinfectants, domestic sanitation, including plumbing, heating, ventilation, the construction of habitations, etc., and will be illustrated by models and special apparatus. Lectures will also be given on personal hygiene, including bathing, exercise, etc., and on climate and health resorts. In addition to the course of systematic lectures, laboratory courses will be given in the Pathological and Chemical laboratories on Bacteriology and sanitary Chemistry. The laboratory work will extend over a period of three months, and will be given twice weekly.

A working museum and model room is equipped with working models and apparatus to illustrate the application of hygienic principles. Demonstrations will be given in the hygienic museum from time to time as required. (See Museums.)

Laryngology and Rhinology.

PROFESSOR, H. S. BIRKETT.
DEMONSTRATOR, H. D. HAMILTON.

This course will consist of practical lessons in the use of the Laryngoscope and Rhinoscope. The instruction will be carried on with small classes, so that individual attention may be insured. A limited number of clinical lectures bearing upon interesting cases attending the clinic will be delivered during the session. These lectures will be, however, of an eminently practical nature.

Mental Diseases.

PROFESSOR, T. J. W. BURGESS.

This course will comprise a series of lectures at the University on Insanity in its various forms, from a medical as well as from a medico-legal standpoint. The various types of mental diseases will be illustrated by cases in the Verdun Asylum, where clinical instruction will be given to groups of senior students at intervals throughout the session.

Diseases of Infants and Children.

PROFESSORS, A. D. BLACKADER. J. C. CAMERON.

Although this subject does not constitute a special chair in the University, systematic instruction is given (*a*) in connection with the chair of Obstetrics and Diseases of Infants, by Prof. Cameron ; (*b*) by a course of lectures, clinical and didactic by Prof. Blackader, and (*c*) through the Children's Clinic at the Montreal General Hospital and at the Infants' Home.

IV.

DOUBLE COURSES.

By special arrangements with the Faculty of Arts, it is now possible for students to obtain the double degree of B.A., and M.D., C.M., after only six years of study.

It has been decided to allow the the Primary subjects (Anatomy, Physiology and Chemistry) in medicine to count as Honor subjects of the third and fourth years in Arts. It follows then that at the end of four years' study a student may obtain his B.A. degree and have two years of his medical course completed.

The remaining two years of study are devoted to the third and fourth year subjects in Medicine.

The special provisions for Medical Students in the Arts course are as follows :—

During the first two years in the Faculty of Arts students taking the double course will complete their studies in Biology, Physics and Elementary Chemistry.

I.—*In the Third Year* :—

(*a*) Anatomy and Practical Anatomy, Histology and Physiology, of First Year Medicine.

(*b*) Either one or two of the courses which are not placed under the heading " Science " in the Arts curriculum.

(*c*) Either one or two hours weekly in English Composition.*

* NOTE.—Students are recommended to distribute their English work over two years.

II. *In the Fourth Year* :—

(*a*) Anatomy and Practical Anatomy, Histology, Physiology, Chemistry, of Second Year Medicine.

(*b*) One of the courses which are not placed under the heading " Science " if only one has been taken in the Third Year.

(*c*) One hour weekly in English Composition, if only one has been taken in the Third Year.*

To secure these privileges, certificates of registration in the Medical Faculty must be presented at the beginning of each year to the Dean of the Faculty of Arts; and at the end of each session in the first two years certificates of attendance on lectures and of passing the corresponding examinations must also be presented. At the end of the Third and Fourth Years certificates must be presented to show that the full curriculum of the Medical Faculty for the year has been completed.

A certificate of Licentiate in Arts will be given along with the professional degree in Medicine to those who, previous to entrance upon their professional studies proper, have completed two years in the Faculty of Arts, and have duly passed the prescribed examinations therein.

The Faculty of Medicine strongly recommends students to take an Arts course before beginning Medicine whenever possible, devoting special attention to Chemistry, Biology, Physics, and German. Should a student have but one year at his disposal he is advised to take Chemistry, Biology and Physics of the Faculty of Arts as a preliminary training for Medicine.

V.

GRADUATE AND ADVANCED COURSES.

The Faculty of Medicine in 1896 established post-graduate and special courses in connection with the Montreal General and Royal Victoria Hospitals and the various laboratories in

the University buildings. These courses will be continued 1901.

There will be two distinct sets of courses, one a short practical and clinical course for medical men in general practice who desire to keep in touch with recent advances in Medicine, Surgery and Pathology, and who wish special clinical experience in Gynaecology, Ophthalmology, Laryngology, etc. This course will last about six weeks, beginning about the first of May.

A special detailed programme will be prepared, and will be sent on application in February next. The fee, including hospital fees for both hospitals, is fifty dollars.

The other courses will be for those who have just completed their regular course in Medicine, and desire special Laboratory or Clinical teaching before beginning practice.

Arrangements have also been made to accommodate a limited number of such graduates who desire advanced and research work.

Commodious laboratories for advanced work have been equipped in connection with the Pathological and Clinical departments of both the Royal Victoria and Montreal General Hospitals, and in connection with the general laboratories for Pathology, Pharmacology, Physiology and Chemistry, recently altered and extended in the new buildings of the Faculty.

Recent graduates of recognized universities desiring to qualify for examinations by advanced laboratory courses, or who wish to engage in special research, may enter at any time by giving notice, stating the courses desired and the time at their disposal.

All the regular clinics and demonstrations of both hospitals will be open to such students on the same conditions as undergraduates in medicine of this University.

These laboratories have been open for graduates since May 1st, 1896.

Further details regarding courses, fees, etc., may be obtained on application to the Registrar.

The Graduate Course of 1900.

The Faculty of Medicine has completed its Fifth special course of instruction for general practitioners. This course began Tuesday, May 2nd, and closed June 10, 1900.

The course consisted of :—

(A.)—Laboratory Courses.—Systematic laboratory instruction was given from 9 to 10.30 every morning in Microscopical Methods, Clinical Microscopy, Clinical Chemistry and Clinical Bacteriology, including the histology of blood in disease and serum diagnosis. These courses were conducted by Profs. Ruttan, Adami and Wyatt Johnston, assisted by Drs. C. F. Martin, N. D. Gunn, Nichols, Anderson and Yates. A course of Operative Surgery on the cadaver was given by Prof. Armstrong from 8 to 9 a.m. during the second, third and fourth weeks of the course.

(B.)—Laboratory and Special Demonstrations.—These demonstrations were given daily from 10.30 to midday, and consisted of one or more of the following: Modern treatment of Diphtheria, Prof. Finley; Operative Midwifery, Prof. J. C. Cameron; Mental Diseases, Dr. Burgess; Medico-Legal Autopsy Methods, Prof. Wyatt Johnston; Clinical use of Roentgen Rays, Prof. Girdwood ; Illustrations of the Graphic method as applied to Physiology and Clinical Medicine, Prof. W. Mills; Anatomical Demonstration on the Cadaver, Drs. McCarthy and Tait McKenzie ; Surgical Anatomy, Drs. Elder and J. Henderson; Clinical Chemistry and Urinalysis, Prof. Ruttan ; Morbid Anatomy of certain diseases, Prof. Adami; Infant feeding (Modified Milk, etc.), Dr. Evans.

(C).—Medical and Surgical Clinics.—For four days each week, during the first two hours of the afternoon, there were clinics on groups of cases in the wards of the Montreal General and Royal Victoria Hospitals. Those given in the Medical Wards of the Montreal General Hospital were given

by Profs. Blackader and Lafleur; in the Surgical Wards, by Prof. Shepherd and Dr. Elder; in the Royal Victoria Hospital Medical Wards, by Prof. Stewart and Dr. C. F. Martin; in the Surgical Wards, by Prof. Bell and Dr. Garrow. In addition two or three ward classes were given weekly.

(D.)—Clinics in Special Departments of Medicine and Surgery.—One or more of these clinics were given in the Hospitals each afternoon, after the regular Medical or Surgical Clinic, and during the entire afternoon on Wednesday and Saturday of each week. The following special Clinics were given : Ophthalmology in the Royal Victoria Hospital, by Prof. Buller; in the Montreal General Hospital, by Dr. J. Gardner; Dermatology, Prof. Shepherd; Genito- by Dr. J. Gardner and Dr. J. W. Stirling; Dermatology, Prof. Shepherd; Genito-Urinary Surgery, Prof. Bell; Orthopedics, Dr. C. W. Wilson; Laryngology, Prof. Birkett and Dr. Hamilton; Gynaecology, Prof. Wm. Gardner and Dr. Chipman in the Royal Victoria Hospital, and Dr. Lockhart and Dr. J. W. Cameron in the Montreal General Hospital; Aseptic Midwifery (at the Montreal Maternity Hospital), Prof. J. C. Cameron; Diseases of Children, Prof. Blackader and Dr. G. G. Campbell.

The above course of instruction is given wholly apart from the regular lectures, clinics, etc., for undergraduates in medicine, and the Graduates may enter on the course at any time between May 1st and June 15th.

Practitioners who purpose attending this course may obtain programme of course for 1901 on application after March next to the Registrar.

Diploma Course in Public Health.

The Faculty of Medicine in the session 1899-1900 instituted a graduate course in Public Health and Sanitary Science. This course will be given each year and the diplomas conferred at the annual convocation.

Candidates undertaking this Course must have possessed a degree in Medicine or other qualification of practice for at least twelve months before the candidate is competent to receive the diploma. The following are the courses requisite :—

1. Course of lectures in Public Health (to be omitted in the case of candidates who have attended such a course before graduation).

2. A three months' course of instruction upon infective and parasitic diseases of man and the domestic animals, which course shall include practical work in a bacteriological laboratory.

3. A six months' course of practical study of outdoor sanitary work under a medical officer of health (to be omitted in the case of medical health officers holding appointments prior to the establishment of this diploma course).

4. Three months' attendance and clinical instruction at a hospital for infectious diseases (unless such course has already been taken prior to graduation).

5. Three months' instruction in sanitary chemistry and physics with practical work in a chemical laboratory.

Examination for Diploma shall cover the following subjects :—

1. Examination of clinical cases at an infectious hospital.

2. The drawing up of outlines for annual and other reports of officers of health.

3. Report upon the sanitary condition of some actual locality.

4. The chemical analysis of liquids and gases and of specimens of food.

5. Demonstration of the consideration and use of meteorological hygienic and sanitary apparatus.

6. Microscopical examination of specimens submitted.

7. Description of specimens of human and other diseased tissues.

8. Practical examination in the employment of the usual bacteriological methods.

9. The inspection of carcases of animals to be used for food.

The above examination shall be written and oral and practical, and shall extend over a period of four days.

The following is a list of subjects included in the curriculum of study :—

(*a*) *Sanitary Chemistry*, examination of air, gases, water, the action of water on metals, milk and food; detection of poisons in articles of dress and of decoration; the chemistry of sewage.

(*b*) *Sanitary Physics :* Hydrodynamics, pneumatics and hydraulics applied to hygiene, light and photometry ; heat and thermometry; the principles of hygrometry.

(*c*) *Sanitary Legislation :* Statutes and by-laws relating to public health; the powers of public sanitary authorities.

(*d*) *Bacteriology and Parasitology :* Modes of propagation of disease and transmission of disease between man and man, and man and animals; bacteriological analysis in relation to public health matters; natural history of microbes and animal parasites.

(*e*) *Vital Statistics:*Calculation and tabulation of returns of births, marriages, and deaths and diseases.

(*f*) *Nosology :* Definition in nomenclature and classification of disease.

(*g*) *Meteorology and Climatology :* The geographical and topographical distribution of disease.

(*h*) *Preventive Medicine and Practical Sanitation.*

The fee for the Diploma shall be $20.

Diploma of Legal Medicine.

The Faculty of Medicine has decided to grant a Diploma in Legal Medicine, and to give Post-Graduate instruction leading to this diploma during the session of 1901-1902.

Candidates for the diploma must possess a degree in Medicine or other qualification for practice, and present certificates of having attended the following courses :—

1. A course of six months' scientific study in Legal Medicine, consisting of systematic lectures and practical medico-legal and toxicological instruction in laboratories and elsewhere.

2. A course of six months' training as assistant in medico-legal practice. The candidate shall produce a certificate, or certificates satisfactory to the Faculty, that he has continuously and actively assisted in the regular duties of some medico-legal expert, recognized by the Faculty. Of the two six months' courses referred to in this and the preceding paragraph, not less than three months shall be concurrent.

3. A special course, or courses, of lectures in Legal Medicine and mental diseases.

4. A practical (laboratory) course in Toxicology.

5. A course of instruction in the law relating to medicine, and to the status, rights, and responsibilities of the physician.

6. A series of short courses with demonstrations upon the following subjects: (*a*) Methods of conducting medico-legal autopsies. (*b*) The methods of medico-legal microscopy ; procedure in the examination of blood-stains, etc. (*c*) Methods of skingraphy. (*d*) Methods of procedure in cases of wounds and injuries. (*e*) Method of procedure in cases of assaults upon women and children. (*f*) Methods of procedure in cases of abortion and infanticide. (*g*) Methods of procedure in cases of the determination of sex and paternity. (*h*) Methods of procedure in cases of offence against morals. (*j*) Methods of procedure in the study of mental conditions. (*k*) Methods of procedure in examination for life and accident assurance. (*l*) Estimation of compensation for injury.

No candidate shall be admitted to any portion of the examination for this diploma until at least one full academic year has elapsed since his graduation in medicine.

The examination shall be both written and practical, and shall extend over a period of not less than three days. It shall be conducted by examiners appointed by the Faculty.

The requirements for the Diploma shall be attendance upon lectures and laboratory work as above outlined, but the Faculty does not accept the responsibility of giving the above course or any part of it other than as may be announced from year to year in the Medical Calendar.

The fee for the diploma and course is $20.

VI.

Qualifications for the Degree.*

1st. No one entering after September, 1894, will be admitted to the Degree of Doctor of Medicine and Master of Surgery who shall not have attended Lectures for a period of four nine months' sessions in this University, or some other University, College or School of Medicine, approved or by this University.

2nd. Students of other Universities so approved and admitted on production of certificate to a like standing in this University shall be required to pass all Examinations in Primary and Final Subjects in the same manner as Students of this University.

3rd. Graduates in Arts who have taken two full courses in General Chemistry, including Laboratory work, two courses in Biology, including the subjects of Botany, Embryology, Elementary Physiology and dissection of one or more types of Vetebrata, may, at the discretion of the Faculty, be admitted as second-year Students, such courses being accepted as equivalent to the first-year in Medicine. Students so entering will, however, not be allowed to present themselves for examination in Anatomy until they produce certificates of dissection for two sessions.

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* *It shall be understood that the programme and regulations regarding courses of study and examinations contained in this calendar hold good for this calendar year only, and that the Faculty of Medicine, while fully sensible of its obligations towards the students, does not hold itself bound to adhere absolutely, for the whole four years of a student's course, to the conditions now laid down.*

4th. Candidates for Final Examination shall furnish Testimonials of attendance on the following branches of Medical Education. ‡ viz. :

Anatomy.	Of which Two full Courses will be required.
Practical Anatomy.	
Physiology.	
Chemistry.	
Pharmacology and Therapeutics.	
Principles and Practice of Surgery.	
Obstetrics and Diseases of Infants.	
Gynæcology.	
Theory and Practice of Medicine.	
Clinical Medicine.	
Clinical Surgery.	
Medical Jurisprudence.	Of which One full Course will be required.
Genesal Pathology.	
Hygiene and Public Health.	
Paactical Chemistry.	
Ophthalmology and Otology.	
Biology.	Of which One Course will be required.†
Histology.	
Pathological Anatomy.	
Bacteriology.	
Mental Diseases.	
Pediatrics.	
Medical and Surgical Anatomy.	

He must also produce Certificates of having assisted at six Autopsies, of having dispensed Medicine for a period of three months, and of having assisted at twenty Vaccinations.

5th. Courses of less length than the above will only be received for the time over which they have extended.

6th. No one will be permitted to become a Candidate for the degree who shall not have attended at least one full Session at this University.

7th. The Candidates must give proof of having attended during at least twenty-four months the practice of the Montreal General Hospital or the Royal Victoria Hospital or of some other Hospital of not fewer than 100 beds, approved of

‡ Provided, however, that Testimonials equivalent to, though not precisely the same as those above stated, may be presented and accepted.

† Students enregistered in the Province of Quebec are required to attend and pass examinations in Laryngology and Minor Surgery.

by this University. Undergraduates are required to attend only the practice of the Out-Patient departments of the Hospitals during their second year.

8th. He must give proof of having acted as Clinical Clerk for six months in Medicine and six months in Surgery in the wards of a general hospital recognized by the Faculty, of having reported at least 10 medical and 10 surgical cases.

9th. He must also give proof by ticket of having attended for at least nine months the practice of the Montreal Maternity or other lying-in-hospital approved of by the University, and of having acted as assistant at least six cases.

10th. Every candidate for the degree must, on or before the 15th day of May, present to the Registrar of the Medical Faculty testimonials of his qualifications, entitling him to an examination, and must at the same time deliver to the Registrar of the Faculty an affirmation or affidavit that he has attained the age of twenty-one years.

11. The trials to be undergone by the Candidate shall be in the subjects mentioned in Section 4.

12. The following oath of affirmation will be exacted from the Candidate before receiving his degree :

Sponsio Academica.

In Facultate Medicinæ Universitatis.

Ego, A—— B——, Doctoratus in Arte Medica titulo jam donandus, sancto coram Deo cordium scrutatore, spondeo:—me in omnibus grati animi officiis erga hanc Universitatem ad extremum vitæ halitum perserveraturum; tum poro artem medicam caute, caste, et probe exercitaturum; et quoad in me est, omnia ad ægrotorum corporum salutem corducentia cum fide procuraturum; quæ denique, inter medendum, visa vel audita silere conveniat, non sine gravi causa vulgaturum. Ita praesens mihi spondenti adsit Numen.

13th. The fee for the Degree of Doctor of Medicine and Master of Surgery shall be thirty dollars, to be paid by the successful candidate to the University Bursar immediately after examination.

VII.

Examinations.

Frequent oral examinations are held to test the progress of the Student, and occasional written examinations are given throughout the Session.

The **Pass** and **Honor** examinations at the close of each Session are arranged as follows :—

FIRST YEAR.

Examinations in **Biology, Histology, Physiology, Anatomy, Chemistry, Practical Chemistry and Elementary Bacteriology.**

Students who have taken one or more university courses in Biology or Chemistry before entering may be exempted from attendance and examination. Students exempted in these first year subjects are allowed only a pass standing, but may present themselves for examination if they desire to attain an honor standing. Students exempted from First Year Chemistry must take Second Year Chemistry in their first year.

SECOND YEAR.

Examinations in **Anatomy, Chemistry, Practical Chemistry, Physiology, Practical Physiology, Pharmacology** and **Histology.**

THIRD YEAR.

Examinations in **Pharmacology** and **Therapeutics, Medical Jurisprudence, Public Health** and **Preventive Medicine** (including **Bacteriology**), **General Pathology, Mental Diseases, Clinical Chemistry, Obstetrics, Medicine** and **Surgery.**

FOURTH YEAR.

Examinations in **Medicine, Surgery, Obstetrics, Gynæcology, Ophthalmology, Clinical Medicine, Clinical Surgery, Clinical Obstetrics, Clinical Gynæcology, Clinical Ophthalmology** and **Practical Pathology.**

By means of the above arrangement a certain definite amount of work must be accomplished by the student in each

year, and an equitable division is made between the Primary and Final branches.

A minimum of 50 per cent. in each subject is required to pass and 75 per cent. for honors.

Candidates must pass in all the subjects of each year; those who fail to pass in not more than two subjects of either the first second or third years may be granted a supplemental examination at the beginning of the following session.

Supplemental examinations will not be granted, except by special permission of the Medical Faculty, and on written application stating reasons, and accompanied by a fee of $5.00 for each subject.

No candidate will be permitted, without special permission of the Faculty, to proceed with the work of the final year until he has passed all the subjects comprised in the Primary examination.

No student will be allowed to present himself for his final examinations who has not certificates of having passed all his Primary examinations in this University.

Candidates who fail to pass in a subject of which practical courses are required may, at the discretion of the Faculty, be required to repeat the course, and furnish a certificate of attendance thereon. A course in Practical Anatomy will be accepted as equivalent to a third course of lectures in General and Descriptive Anatomy.

VIII.

Fellowships, Medals and Prizes.

The Faculty has begun to establish Teaching and Research Fellowships in connection with the various laboratories.

These fellowships are of a value of five hundred dollars per annum, are open only to graduates in Medicine, and are tenable for three years.

Two are now established in connection with the department of Pathology—a Governor's Fellowship endowed by one

or two of the Governors of the University, and a Faculty Fellowship established by the Faculty. Other Fellowships will be announced as they are established.

1st. The "**Holmes Gold Medal,**" founded by the Medical Faculty in the year 1865, as a memorial of the late Andrew Holmes, Esq., M.D., LL.D., late Dean of the Faculty of Medicine. It is awarded to the student of the graduating class who receives the highest aggregate number of marks in the different branches comprised in the Medical Curriculum.

The Student who gains the Holmes' Medal has the option of exchanging it for a Bronze Medal, and the money equivalent of the Gold Medal.

2nd. **The Final Prize.**—A Prize in Books (or a Microscope of equivalent value) awarded for the best examination, written and oral, in the Final branches. The Holmes' medalist is not permitted for this prize.

3rd. **The Third Year Prize.**—A Prize in Books awarded for the best examination, written and oral, in the branches of the third year.

4th. **The Second Year Prize.**—A Prize in Books for the best examination in all the branches of the second year in course.

5th. **The First Year Prize.**—A Prize in Books for the best examination in all the branches of the first year in course.

6th. "**The Sutherland Gold Medal,**" founded in 1878 by the late Mrs. Sutherland in memory of her late husband, William Sutherland, M.D., formerly Professor of Chemistry in this Faculty. It is awarded for the best examination in General and Medical Chemistry, together with creditable examination in the primary branches. The examination is held at the end of the third year.

7th. The "**Clemesha Prize in Clinical Theraupeutics,**" founded in 1889 by John W. Clemesha, M.D., of Port Hope, Ont. It is awarded to the student making the highest marks in a special clinical examination.

IX.

Fees.

The total Faculty Fees for the whole medical course of four full sessions, including clinics, laboratory work, dissecting material and reagents, will be *five hundred dollars*, payable in four annual instalments of $125 each.

For the convenience of the undergraduates, the Hospital fees are payable in the Registrar's office; ten dollars to be paid at the beginning of each of the last three sessions, viz., the second, third and fourth years. This will entitle each undergraduate to perpetual tickets for both the Montreal General and Royal Victoria Hospitals.

Partial students will be admitted to one or more courses on payment of special fees. An annual University fee of three dollars is charged students of all the faculties for the maintenance of college grounds and athletics.

Students repeating the course of study of any Academic session are not required to pay full fees. A fee of thirty five dollars will be charged, which will include Hospitals, dissecting material, chemical reagents, laboratory fees, etc. The same fee is charged students entering from other colleges who have already paid elsewhere fees for the courses taken.

All fees are payable in advance to the Registrar, and except by permission of the Faculty will not be received later than October 20th.

It is strongly recommended to parents or guardians of students that the fees be transmitted direct by cheque or P.O. Order to the Registrar, who will furnish official receipts.

For Graduation Fees, see page 278.

For Hospital Fees, see page 302.

X.

Text Books.

ANATOMY.—Gray, Morris, Quain (Eng. Ed.), Gervish.

PRACTICAL ANATOMY.—Cunningham's Practical Anatomy, Ellis' Demonstrations, Holden's Dissector and Landmarks.

PHYSICS.—Balfour Stewart.

INORGANIC CHEMISTRY.—Remsen, Wurtz's Elementary Chemistry.

ORGANIC CHEMISTRY.—Remsen.

PRACTICAL CHEMISTRY.—Odling.

PHARMACOLOGY AND THERAPEUTICS.—Butler, White, Hare and Wood.

PHYSIOLOGY.—Foster and Shore's Physiology for Beginners, Mills' Text-Book of Animal Physiology, Foster's Physiology, G. N. Stewart's Physiology, Mills' Class Laboratory Exercises.

PATHOLOGY.—Zeigler, Coats'.

PRACTICAL PATHOLOGY.—Mallory and Wright, Delafield & Prudden, Boyce.

BACTERIOLOGY.—Muir & Ritchie, Abbott.

HISTOLOGY.—Klein's Elements, Schafer's Essentials of Histology, Stohr.

SURGERY.—Holmes, Moullin, Walsham, Erichsen, Treves, American Text-Book of Surgery, Da Costa.

PRACTICE OF MEDICINE.—Osler, Tyson, Wood and Fitz.

CLINICAL MEDICINE.—Musser's Medical Diagnosis; Simon, Klemperer, Rainy and Hutchison, Vierort's Medical Diagnosis.

MEDICAL JURISPRUDENCE.—Reese, Guy and Ferrier.

MENTAL DISEASES.—Insanity and its Treatment, Blandford, 4th Ed.

OBSTETRICS.—Jewett, and American Text-Book.

DISEASES OF CHILDREN.—Holt, Rotch, Smith and Starr.

GYNÆCOLOGY.—Hart and Barbour, Garrigues, Webster, Dudley on Diseases of Women.

HYGIENE.—Parks, Wilson, Rohe.

BIOLOGY, BOTANY.—Gray's Text-Book of Histology and Physiology; ZOOLOGY, Shipley and Macbrides' Introduction to Zoology.*

OPTHALMOLOGY.—De Schweinitz, Nettleship and Swanzy.

OTOLOGY.—Pritchard, Dalby.

LARYNGOLOGY.—Watson Williams and Karl Seiler, Grumwald's Atlas of Diseases of Larynx.

OPERATIVE SURGERY.—Jacobson, Treves, Kocher.

DERMATOLOGY.—Malcolm Morris, Hyde, Crocker, Unna.

MEDICAL DICTIONARY.—Gould, Dunglison, Hoblyn.

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* Each student will be required to pay $2.50 in order to cover the cost of a class book, dissecting instruments and other necessaries which are supplied to him and become his property.

XI.

Museums.

The Faculty has during recent years devoted special attention to the development of its museums in the several departments in which objective teaching is of especial value in the education of the student.

There are now four museums in the Medical Building: (1) the Museum of Pathology, (2) the Anatomical Museum, (3) the Museum of Public Health and Preventive Medicine, (4) the Museum of Pharmacy.

Each collection is arranged and selected with the primary object of making it a teaching museum. The several collections are open to students and the public between 9 a.m. and 5 p.m.

Pathological Museum.

PROF. J. G. ADAMI, DIRECTOR.
MAUD E. ABBOTT, B.A., M.D., ASSISTANT CURATOR.
M. JULES BAILLY, OSTEOLOGIST AND ARTICULATOR.

For the past fifty years the rich Pathological Material furnished by the Montreal General Hospital has been collected here. The Faculty is also greatly indebted to many medical men throughout Canada and different parts of the world for important contributions to the Museum.

During the past few years, numerous and extremely important additions have been made to the Medical Museum.

It is particularly rich in specimens of Aneurisms. In addition to containing a large number of the more common varieties of these formations, there are specimens of such rare conditions as Aneurism of the Hepatic and Superior Mesentric Arteries, Traumatic Aneurism of the Vertebral, together with several of the cerebral and pulmonry arteries. The most important collection probably in existence of hearts affected with "Malignant Endocarditis" is also found. The Faculty are indebted to Prof. Osler, late of this University, for this collection.

The Museum contains also a very large collection of different forms of calculi. The Faculty are mainly indebted to Prof. Fenwick for this collection.

During the past eight years, M. Bailly, osteologist and articulator (lately with Tramond of Paris), has been engaged in arranging and mounting the very large number of specimens of disease and injuries of bones which have been accumulating for years. INn this collection are to be found examples of fractures and dislocations of the spine, osteoporosis, congenital dislocation of the hip, fracture of the astragalus, multiple exostoses, etc., etc.

The Pathological Museum has recently undergone complete alteration. All the old fixtures have been removed, a new gallery has been erected about both rooms reached by a single staircase in a small intermediate room in which is placed the medico-legal collection.

The first room on entering contains the extensive bone collection and calculi. The second and larger room is reserved for the moist preparations, which are arranged so as to be of easy access for the student. Water color drawings made from the fresh specimens are mounted on swinging frames, and also form a frieze at the ceiling. These serve to recall the fugitive colors of those preparations which become more or less altered on keeping.

Numerous specimens have been contributed from the surgical and medical wings of the Royal Victoria Hospital, and from the different departments of the Montreal General Hospital.

Museum of Public Health and Preventive Medicine.

DIRECTOR, ROBERT CRAIK.

This Museum has been established from the interest accruing through the endowment of the Chair of Hygiene by Lord Strathcona and Mount Royal in 1893.

The museum at present is chiefly of interest on account of the number and excellence of the working models, illustrating

the best modern methods of stertilisation, disinfection, filtration and ventilation, together with a very useful collection of modern sanitary apparatus, illustrating the advantages and disadvantages of the water carriage system for the disposal of refuse, etc.

The Director has much pleasure in acknowledging contributions of value from :

1. The Sanitary Construction Company of New York.
2. Richard King, King, Sprague & Co., New York.
3. Maignens Filtre Rapide Co., London, Eng.
4. L. Casella, London, Eng.
5. Messrs. Doulton & Co., Lambeth Pottery, London, E.C.
6. The Sanitary Institute, Parke's Museum, London.
7. The Hygienic Referendum, Hornsey, London, Eng.
8. Messrs. Newton & Co., London.
9. The Expanded Metal Co., London.
10. A. B. Reck, Copenhagen, Denmark.
11. Fischer Filter Plate Co.
12. J. W. Hughes, Montreal.
13. Wormser, Filterplatten-Werk, Worms, Germany.
14. The Laing Packing Company, Montreal.

The Department of Hygiene is also indebted to Mr. Fleming, Sanitary Engineer, for assistance and advice.

Anatomical Museum.

DIRECTOR, PROFESSOR F. J. SHEPHERD.
M. JULES BAILLY, OSTEOLOGIST AND ARTICULATOR.

This Museum occupies a large room on the same floor and adjoining the Anatomy Lecture Room and Dissecting Room. Smaller apartments in connection are used for private research, which is encouraged in epery way by the Faculty.

The Museum is well furnished and comfortable, and students have every opportunity of studying Human, Comparative and Applied Anatomy.

This department has during the past few years added a very complete collection of plaster and papier mache models

by Steger, after the well-known works of His and Braune, comprising :

(*a*) A complete set of Steger's brain sections.

(*b*) Models of the cerebro-spinal and sympathetic nervous systems.

(*c*) Professor Cunningham's well-known and beautiful casts of the head showing the relation of the cerebral convolutions to the skull and its sutures.

A large collection of human brains, made by Professor Osler, formerly of this University, exhibiting the various types and extremes.

A large and rare collection of anomalies of the Renal vessels and ureter, and the aorta and its branches.

In Comparative Anatomy the student will find a fair amount of material, the study of which will greatly aid him in the elucidation of many points in Human Anatomy.

Many skeletons mounted by Mons. Jules Bailly, Articulator to the University, representing the various classes, orders, genera and species of the animal kingdom may be consulted.

A large collection, showing the pectoral girdle in birds, has been prepared under the supervision of the Professor of Anatomy.

Moist and dry preparations of dissections, a large collection of frozen cross sections of the human body, showing the normal relations of the viscera, etc., will be found convenient for study.

XII.

Library.

LIBRARIAN, PROF. F. G. FINLEY.
ASSISTANT LIBRARIAN, MISS M. R. CHARLTON.

The Library of the Medical Faculty now comprises upwards of twenty-three thousand volumes, the largest special library connected with a medical school on this continent.

The valuable libraries of the late Professors Robert Palmer Howard, George Ross, Richard L. MacDonnell, T. Johnston Alloway and of Dr. Allen Ruttan have been donated to the Medical Faculty.

The standard text-books and works of reference, together with complete files of the leading periodicals, are on the shelves. Students may consult any work of reference in the library between 9 a.m. and 6 p.m. A large library, reading-room for the use of students is provided.

Extracts from the Library Regulations.

I. During the College Session the Library is open daily (except Sundays and general public holidays) from 9 a.m. till 6 p.m. During vacation from 10 a.m. to 5 p.m.

II. The stack room is not open to students or to the public.

III. The books in the Library are classed in two divisions : 1st, those which may be taken from the Library; 2nd, those which may not, under any circumstances, be removed from the Library. The latter class includes all catalogues, dictionaries and encyclopedias.

IV. Students will be allowed to use regular text-books only in the Library. Any other book map be taken out at 5.30 p.m. to be returned the next day. If books so removed from the Library are not returned punctually, a fine will be imposed, and if the delay be serious the student may be suspended from use of the Library at the discretion of the Librarian.

V. Students may take out books, subject to the above regulations, to the number of three volumes at one time.

VI. Books may be taken from the Library only after they have been especially asked for and charged at the delivery desk ; borrowers who cannot attend personally must sign and date an order, giving the titles of the books desired and the name of the person deputed to procure the same.

VII. Damage to or loss of books shall be made good to the satisfaction of the Librarian and of the Library Committee. Writing or making any mark upon any book belonging



In the Medical Library.

to the Library is unconditionally forbidden. Any persons found guilty of wilfully damaging any book in any way shall be excluded from the Library, and shall be debarred from the use thereof for such time as the Library Committee may determine.

VIII. Silence must be strictly observed in the Library.

IX. Infringement of any of the rules of the Library will subject the offender to a fine or suspension of his privileges, or to such other penalty as the nature of the case may require.

The number of volumes presented to the Library from June 1st, 1899, to October, 1900	1,320
Those added by purchase	163
Total additions to October, 1900	1,483
The attendance of readings	13,960
June 15th, 1900, has been	9,956
The attendance from June 2nd, 1897, to May 14th, 1898, was	6,350
The attendance from June 1st, 1896, to June 1st, 1897, was	5,920
The attendance from June 1st, 1895, to June 1st, 1896, was	4,875
The number of books taken out for home use has been	9,155
The number of Journals and pamphlets has been	700

This does not include the works consulted in the Library.

The Faculty has endeavored to make the Library as complete as possible for research work. Complete files of almost all the important periodicals are now on the shelves, including foreign as well as English and American journals. A large number of transactions of various societies has recently been acquired, and also the Berlin and Paris theses.

Arrangements have been made whereby practitioners both in the city and country can avail themselves of the library, the ly conditions being the payment of express charges and a arantee for the safe return of books borrowed.

XIII.

McGill Medical Society.

This Society, composed of enregistered Students of the Faculty, meets every alternate Saturday during the Autumn and Winter Terms, for the reading of papers, case reports and discussions on medical subjects. A prize competition has been established in senior and junior subjects, the senior being open to all to write upon, while only the 1st, 2nd and 3rd year students are allowed to compete in the junior subjects. The papers are examined by a board elected from the Professoriate, and a first and second prize in each division of subjects is awarded to the successful candidates.

Names of competitors and titles of papers shall be sent to the Chairman of the Programme Committee before September 1st, and all papers shall be subject to the call of the Committee on October 1st. All papers shall be handed in for examination on or before January 10th.

The Students' reading room has been placed under the control of this Society, in which the leading English and American Medical Journals are on file, as well as the leading daily and weekly newspapers of the Dominion.

The annual meeting is held the first week of the Spring Term, when the following officers are elected : Hon. President, elected from the Faculty ; President, Vice-President, Secretary, Assistant Secretary, Treasurer, Reporter, Pathologist, and three Councilmen (of whom two shall be elected from the Faculty).

XV.

Hospitals.

The City of Montreal is celebrated for the number and importance of its public charities. Among these its public hospitals are the most prominent and widely known. Those in which medical students of McGill University will receive

clinical instruction are : (1) The Montreal General Hospital. (2) The Royal Victoria Hospital. (3) Montreal Maternity Hospital.

The Montreal General Hospital has for many years been the most extensive clinical field in Canada. The old buildings, having proved inadequate to meet the increased demand for hospital accommodation, have recently been increased by the addition of two surgical pavilions, the Campbell Memorial, and the Greenshields Memorial, and of a new surgical theatre. The interior of the older buildings now has been entirely reconstructed on the most approved modern plans.

The Royal Victoria Hospital at the head of University Street, which in structure and arrangements ranks among the finest modern hospitals of either continent, was opened for the reception of patients the first of January, 1894, and affords exceptional opportunities for clinical instruction and practical training.

Montreal General Hospital.

This Hospital consists of a Surgical, a Pathological and a Medical Department.

The Surgical Department has two large pavilions, containing four wards 135 feet long by 35 broad, with an intervening and connecting building in which is a large operating theatre of the most modern type, capable of seating over 350 students. In connection with this are preparation, etherising, instruments, stertilising and surgeons' rooms, also smaller operating rooms. The Surgical pavilions, which were built three years ago, accommodate over one hundred patients.

The old part of the hospital, consisting of the Reed, Richardson and Morland wings, has during the past year been completely rebuilt and remodelled, and forms the Medical Department. This part contains four wards, 100 feet by 40, and is arranged for 150 beds. In this building there are

wards for Gynaecological and Opthalmological patients, a number of private wards and laboratories for Clinical Chemistry. There is also a medical amphitheatre capable of seating 150 students and a gynaecological operating room fitted up in the most modern manner. The central part of the old building is for administration purposes.

A completely new and commodious out-door patient department has been provided on the ground floor of the Richardson wing, and there is ample accommodation for the various special departments as well as large rooms for general medical and surgical patients.

The Pathological Department is a completely new building in which are the post-mortem theatre and rooms for microscopical and bacteriological work, and also a mortuary and chapel. In this building students are offered every opportunity of perfecting their knowledge of morbid anatomy and pathological histology.

The old Fever Wards on the grounds of the Hospital have been completely remodelled, and are now used as a laundry and kitchen.

A much larger number of patients receive treatment in the Montreal General Hospital than in any other Canadian Hospital. Last year's report shows that between two and three thousand Medical and Surgical cases were treated in the wards, and the great proportion of these were acute cases, as may be gathered from the fact that the average duration of residence was only 24.02 days. Upwards of thirty-two thousand patients are annually treated in the out-door department of this Hospital.

The Royal Victoria Hospital.

This Hospital is situated a short distance above the University Grounds on the side of the Mountain, and overlooks the city. It was founded in July, 1887, by the munificence of Lord Mount Stephen and Sir Donald Smith, who gave half a million dollars each for this purpose.

The buildings, which were opened for the reception of patients on the first of January, 1894, were designed by Mr Saxon Snell of London, England, to accommodate between 250 and 300 patients.

The Hospital is composed of three main buildings connected together by stone bridges ; an Administration Block in the centre and a wing on the east side for medical patients, in immediate connection with which is the Pathological wing and mortuary, and a wing on the west side for surgical patients.

The Administration block contains ample accommodation for the resident medical staff, the nursing staff and domestics. The patients' entrance, the dispensary and admission rooms are also situated in this building. To the north of the Administration block has been erected a large out-patients' department, in which are special departments for Minor Surgery, Ophthalmology, Laryngology, and Gynaecology. This wing was opened for patients during the winter of 1899-1900.

The Medical wing contains three large wards, each 123 feet long by 26 feet 6 inches wide, one ward 40 feet by 26 feet 6 inches, and fifteen private and isolation wards averaging 16 feet by 12 feet. Also a medical theatre with a seating capacity for 250, and three rooms adjacent to it for clinical chemistry and other purposes. North of this wing and in direct connection with it are the Pathological laboratories and mortuary.

In this wing are situated the mortuary proper, the chapel, a post mortem room capable of accommodating 200 students, and laboratories for the microscopic and bacteriological study of morbid tissues, some designed for the use of students and others for post graduation courses and special research. Special laboratories for Pathological Chemistry, Experimental Pathology, Bacteriology and Photography are also provided.

The Surgical wing contains three large wards, each 123 feet long by 26 feet 6 inches wide, four wards each 40 feet by 32 feet, and seven private and isolation wards, averaging 16 feet

by 12 feet ; also a surgical theatre with a seating capacity for 250, with six rooms adjacent for preparations and after recovery purposes.

In this wing are also the wards for Gynaecology and Ophthalmology.

Hospital Fees.

Annual tickets entitling students to admission to both the Montreal General and the Royal Victoria Hospitals must be taken out at the commencement of the session, price $5.00 each. These are obtained at the College. Perpetual tickets will be given on payment of the third annual fee.

XVI.

CLINICAL INSTRUCTION.

During the Session of 1901-1902, three Medical, three Surgical, two Gynaecological and two Ophthalmological clinics will be held weekly in both the Montreal General and Royal Victoria Hospitals.

In addition, tutorial instruction will be given in these different departments in the wards, out-patient rooms and laboratories. Special weekly clinics will be given in the Montreal General Hospital on Dermatology and Laryngology and in the Royal Victoria Hospital on diseases of the Genito-Urinary system, and Laryngology.

Clinical Clerks in the medical and surgical wards of both Hospitals are appointed every three months, and each one during his term of service conducts, under the immediate directions of the Clinical Professors, the reporting of all cases in the ward allotted to him. Students entering on and after October, 1893, are required to show a certificate of having acted for six months as clinical clerk in medicine and six months in surgery, and are required to have reported at least ten cases in medicine and ten in surgery. The instruction obtained as clinical clerk is found to be of the greatest pos-

sible advantage to Students, as affording a true *practical* training for his future professional life.

Dressers are also appointed to the Out-door Departments. For these appointments, application is to be made to the Assistant Surgeons, or to the resident surgeon in charge of the out-patient department.

The large number of patients affected with diseases of the eye and ear, now attending the special clinics at both hospitals afford ample opportunity to students to become familar with all the ordinary affections of those organs, and to make themselves proficient in the use of the ophthalmoscope; and it is hoped that every student will thus seek to gain a practical knowledge of this important branch of Medicine and Surgery. Operations are performed on the eye by the Ophthalmic Surgeons after the outdoor patients have been seen, and Students are invited to attend the same, and as far as practicable to keep such cases under observation so long as they remain in the Hospital.

There are also special departments in both Hospitals for Gynaecology and Laryngology, directed by Specialists in these branches. Students are thus enabled to acquire special technical knowledge under skilled direction. The plan of teaching practical gynaecology for the past five years with marked success has been the limitation of the number of Students.

The Clinics at the Montreal General Hospital in Dermatology and in both hospitals in Laryngology are very large, and afford a practical training in affections of the skin and throat rarely obtained by medical students.

A special clinic for diseases of the Genito-Urinary Organs has been established at the Royal Victoria Hospital.

Infectious diseases and Insanity will also be taught clinically, the former in the special wards for infectious diseases and the latter at the Verdun Hospital for the Insane.

The Montreal Maternity.

The Faculty has great pleasure in announcing that the Corporation of the Montreal Maternity has made very important additions to its building, and has in contemplation the erection of a large new building, fitted with the most modern appliances. Students will therefore have greatly increased facilities for obtaining a practical knowledge of obstetrics and diseases of infancy. An improved Tarnier-Budin phantom is provided for the use of the students, and every facility afforded for acquiring a practical knowledge of the various obstetric manipulations. The institution is under the direct supervision of the Professor of Midwifery, who devotes much time and attention to individual instruction. Students who have attended the course on obstetrics during the autumn and winter terms of the third year will be furnished with cases in rotation, which they will be required to report and attend till convalescence. Clinical midwifery has been placed upon the same basis as Clinical Medicine and Surgery, and a final Clinical examination instituted. Regular courses of clinical lectures are given throughout the session, special attention being paid to the important subject of infant feeding. The Walker-Gordon process of modifying milk is explained and demonstrated. During the autumn and winter terms the Demonstrator of Obstetrics gives Clinical Demonstrations in the wards and instruction in operative work on the phantom. Students will find it very much to their advantage to pay special attention to their Clinical work during the spring term of the third year and the following summer. One resident medical officer is appointed yearly from the graduating class to hold office for a period of six months.

Fee for twelve months, $12, payable at the Maternity Hospital.

Faculty of Comparative Medicine and Veterinary Science.

The eleventh Session of the Faculty (being the thirty-sixth of the Montreal Veterinary College) will be opened on Saturday, 21st September, 1901. The regular course of lectures will begin on September 24th, at the hours named in the time table, and will continue till the end of March. The hours of lectures will be announced later, together with the alterations which may be necessary; the course as herein announced being subject to such changes as the Faculty may see fit to make.

The Montreal Veterinary College was inaugurated in 1866.

The complete course of study in this Faculty extends over three years. Graduates of recognized Medical Colleges are allowed to present themselves for examination after regular attendance on one full course; graduates of recognized Agricultural Colleges in which Veterinary Science constitutes a branch of study, after regular attendance for two full courses.

Allowances will be made to students of Human or Comparative Medicine, or others who can produce certified class tickets for attendance on any of the subjects embraced in the curriculum from any recognized college or university.

Graduates and students who avail themselves of the above privileges will nevertheless be required to pass an examination in the subjects comprised in the three years' course, unless, from satisfactory evidence otherwise produced, the examiners consider it to be unnecessary.

Graduates of recognized Veterinary Colleges desirous of taking the degree may do so by attendance on the final subjects for one full session, but will be required to pass the examinations on all the subjects embraced in the curriculum, botany excepted.

Matriculation.

Every student, previous to his admission, must produce a certificate of educational requirements satisfactory to the Faculty, or submit himself to a matriculation examination in (1) writing, (2) reading aloud, (3) dictation, (4) English grammar and (5) composition, (6) outlines of geography, with special reference to North America, (7) arithmetic, including vulgar and decimal fractions.

Note.—It is contemplated to add the rudiments of Latin to the matriculation in the near future.

A. N. Shewan, M.A., will hold the matriculation examination on Saturday, 21st September, 9 a.m., at the College, 6 Union Avenue, when all those intending to enter the course should present themselves for examination. Candidates possessing certificates of education or of previous matriculation should produce them for the inspection and approval of the examiner. Graduates of any Faculty in a recognized University or Agricultural College are not required to matriculate.

No College is recognized unless its students are required to matriculate.

Registration and Payment of Fees.

The following are the College regulations:—

All students desirous of attending the classes shall, at the commencement of each session, enrol their names and residences in the register of the Faculty, and procure from the Registrar a ticket of registration, for which each student shall pay a fee of $5.

The said register shall be closed on the last day of October in each year. The fees are payable to the Registrar, and all class tickets will be issued by him, *and must be paid in advance* at the time of registration; the Registrar will on no consideration issue tickets till the fees are paid. Intending students must govern themselves accordingly.*

* Owing to losses incurred by non-payment of fees, the Registrar must refuse registration till the fees are paid, which may be returned if the applicant fails to matriculate.

All students must register, including those who receive free bursaries.

Fees for the whole course are $75 per session, and, in all cases, must be paid on entering. Matriculation fee, $5, which is to be paid prior to the examination; $5 for registration; and $5 for registration, payable at the beginning of each of the following two Sessions, and $20 on receiving the diploma. Students who are allowed time for previous study will be required to pay full fees, and $5 for registration each session. Payments must be made in all cases as above.

In addition to the above Faculty fees, every student must pay an annual fee of $3 for athletics.*

Students of the Province of Quebec.

In consideration of the annual grant, the Council of Agriculture has the privilege of sending thirteen pupils, free of expense, to the whole course; such students, however, pay a fee of $5 for the course in Botany, $5 annually for registration, and $3 annually for athletics. These bursaries may be obtained by young men resident in the Province of Quebec, by application made to the Dean of the Faculty in the handwriting of applicant, accompanied by a recommendation from the Agricultural Society of the district in which they reside, provided the Council considers them qualified by education and in other respects for entering the College.

In all cases, except when specially arranged, Bursars will be required to give a guarantee that they will attend three Sessions, and failing to do so, they shall be required to pay the fees for the Sessions which they have attended. These Bursaries are not intended for nor will they be given to such students as do not require such aid.

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* *First Year, Fees*	$ 75	*Second Year, Fees*	$ 75	*Third Year, Fees*	$ 75
Matriculation "	5	Registration "	5	Registration "	5
Registration "	5	Athletics "	3	Athletics "	3
Athletics "	3			Diploma "	20
	$ 88		$ 83		$103

Special Regulations.

Students of this Faculty will be graded as of the first, the second, and the final year. In each year students will take the studies fixed for that year only, unless by special permission of the Faculty.

Persons desirous of entering as Partial Students shall apply to the Dean of the Faculty for admission as such, and shall obtain a ticket or tickets for the class or classes they desire to attend.

Each lecture shall be of one hour's duration, but the Professors shall have the right to substitute an examination for any such lecture.

At the end of each term there shall be a general examination of all the classes, under the superintendence of the Professors, and such other examiners as may be appointed by the Corporation. The results shall be reported as early as possible to the Faculty.

The students have all the privileges of the McGill Medical Faculty's Laboratories, which are thus described in their anual calendar:—

Physiological Laboratory.

The Physiological Laboratory is supplied with the most modern apparatus for the practical teaching of this most important branch of the medical curriculum. It contains, amongst other valuable instruments, kymographs, various manometers, etc., for demonstrating blood pressure; myographs, rheocords, moist chambers, etc., and various electrical appliances for demonstrating experiments in connection with nerve and muscle; special apparatus for illustrating various points in respiration; apparatus specially suitable for demonstrating the processes of digestion, as well as the chemical composition and nature of the secretions, and the chief constituents of the tissues and nutritive fluids. The laboratory is arranged in such a way as to permit of Students assist-

ing at, and taking part in these demonstrations. During the past session, important additions of apparatus have been made to the Physiological Laboratory.

Chemistry.

The course of Chemistry embraces Chemical Physics, in the first portion of the course, the theory of Chemistry, both inorganic and organic, in the latter part of the course. The Chemical Laboratory, which is available to the Students of Comparative Medicine, is large, lofty and well lighted, and can accommodate comfortably 76 men at one time. Each Student, when entering on his course, has a numbered table in the laboratory assigned to him for his use during the session. Each table has its own gas and water fixtures, and is provided with shelves for its corresponding set of reagent bottles, as well as a drawer and locker containing a modern set of chemical apparatus especially adapted for the work. This apparatus is provided by the Professor of Chemistry, and supplied to each Student without extra charge. The Student is required to pay only for apparatus broken or destroyed.

The laboratory is furnished with a large draught closet for ventilation, sulphuretted hydrogen apparatus, gas and combustion furnaces, etc., giving to the student unsurpassed advantages for acquiring a sound and practical knowledge of medical chemistry.

Pathological Laboratory.

In the Pathological Laboratory accommodation will be provided for Students or practitioners who desire to carry on advanced study or private pathological research. The laboratory has been entirely re-built recently, and is well stocked with the usual apparatus for pathological and bacteriological work.

The demonstrations in Morbid Anatomy will be given in a small laboratory, specially arranged for the work. The

classes in Pathological Histology will be held in the Pathological Laboratory.

Through the generosity of the late Mr. J. H. R. Molson, the large house previously occupied by Professor Harrington has been converted into a Pathological Laboratory, having on the upper floor the Class and Demonstration room, capable of holding practical classes of fifty students. This is fully fitted with microscopes and other apparatus for the purpose of Pathological Histology and Bacteriology. Upon the first floor are the Library and Professor's room, the Preparation and Research rooms, with a smaller Incubator room for Bacteriological use. On the ground floor are situated the animal and store rooms and the apartments of the assistant.

Accommodations will be provided for students or practitioners who desire to carry on advanced study or pathological research.

Histological Laboratory.

The Histological Laboratory is a large, well-lighted room on the second floor. It is so arranged that over eighty students can be present at the microscopical demonstrations. For this purpose it is supplied with thirty-five microscopes, all from the well-known makers, Zeiss, Hartnock, and Leitz. From the large number of microscopes employed, students will have special facilities in studying and making themselves thoroughly acquainted with the specimens that are the subject of demonstration.

Practical Microscopy.

This is an entirely optional course, in charge of Prof. Wilkins and assistants. It is intended especially for teaching the technique of Microscopy. Students will be shown how to examine blood, etc., also to cut, stain, and mount specimens. For this purpose, they will have furnished them normal structures, with which they will be able to secure a cabinet of at least 100 specimens, which will be of great benefit when in practice. Reagents and everything, except cover glasses and cabinets cases, provided. Fee, $8.

COURSES OF LECTURES.

Botany.

D. P. Penhallow, M.Sc., Professor.

Instruction in Botany, obligatory upon all First Year students, will occupy three hours per week throughout the session. The course will deal chiefly with laboratory methods, and is designed to give the student practical familiarity with the characteristics of useful and injurious plants and the methods of their determination, and also to introduce the general principles of nutrition, growth and other leading functional activities.

Chemistry.

Gilbert P. Girdwood, M.D.

Inorganic Chemistry is fully treated; a large portion of the course is devoted to Organic Chemistry and its relations to Medicine. The branches of Physics bearing upon or connected with Chemistry also engage the attention of the Class. For experimental illustration, abundant apparatus is possessed by the College.

The Chemical Laboratory will be open to members of the Class to repeat experiments performed during the course, under the superintendence of the Professor or his Assistant.

Physiology.

T. Wesley Mills, M.A., M.D., D.V.S.

The purpose of this course is to make students thoroughly acquainted so far as time permits, with modern Physiology, its methods, its deductions, and the basis on which the latter rest. Accordingly, a full course of lectures is given, in which both the Experimental and the Chemical departments of the subject receive attention.

In addition to the use of diagrams, plates, models, etc., every department of the subjects is experimentally illustrated. The experiments are free from elaborate *technique*, and many of them are of a kind susceptible of ready imitation by the student.

Laboratory work for Senior Students:—

(1) During a part of the Session there will be a course on Physiological Chemistry, in which the student will, under direction, investigate food-stuffs, digestive action, blood, and the more important secretions and excretions. including urine. All the apparatus and material for this course will be provided.

(2) The remainder of the session will be devoted to the performance of such experiments as are unsuitable for demonstration to a large class in the lecture room and such as require the use of elaborate methods, apparatus, etc. The course for first year students is similar to that for senior students, though less advanced, and more attention will be given to the anatomico-physiological aspects of the subject than to the chemical. It has been arranged that additional practical work shall be done by the students themselves in the Laboratory during next and succeeding sessions.

Histology.

GEO. WILKINS, M.D.

This will consist of a course of ten lectures and twenty-five weekly demonstrations with the microscope. As the demonstrations will be chiefly relied upon for teaching the Microscopic Anatomy of the various structures, the specimens under observation will then be minutely described. Plates and diagrams specially prepared for these lectures will be freely made use of.

Comparative Pathology.

J. G. ADAMI, M.D., Professor.
C. F. MARTIN, M.D., Lecturer.
C. H. HIGGINS, B. Sc., D.V.S., Assistant to the Professor.

The teaching in Pathology at McGill Medical College includes courses in general and special Pathology, in Bacteriology (held during the summer Session), and instruction in the performance of Autopsies. These courses—while directed especially towards giving to the Students a due knowledge of

the causation and course of disease in man—are necessarily based largely upon the results of observations upon the lower animals, and the greater part of all these causes is applicable equally to conditions obtaining in the domestic animals. There is in addition a practical course of Pathological Histology for Students of Comparative Medicine, and instruction is given upon the performance of Autopsies upon the lower animals.*

Veterinary Medicine and Surgery.

D. McEachran, F.R.C.V.S.

Students of all years must attend.

The course embraces the principles and practice of Veterinary Medicine, including the diseases of domestic animals, their nature, causes, symptoms, and treatment. It necessarily includes Pathology and Pathological Anatomy, with daily clinical demonstrations in the hospital and the yard practice of the College, as well as illustrations from plates, preserved specimens, and fresh material furnished by the Pathologist.

The course on Surgery embraces Surgical Anatomy and Practices of Surgery, and will be illustrated by a large collection of surgical appliances.

The large and varied practice of the College furnishes abundance of cases for demonstration purposes. Attendance and practical work in the Pharmacy and Hospital is compulsory during the entire course, in the order arranged at the beginning of each Session ,and forms an important part of the qualification for graduation.

Anatomy.

M. C. Baker, D.V.S.
B. A. Sugden, D.V.S., Demonstrator.

In this course the Anatomy of the horse is the subject of special study, while the structural differences of all the domestic animals are carefully explained and illustrated by

* Undergraduates in the second or third sessions are particularly recommended to take the practical course in Bateriology during the summer session, if possible.

fresh subjects. There is a very large collection of anatomical models by Dr. Auzoux, of Paris, natural injections and dissections, and a most complete collection of diagrams, including Marshall's complete set, Mons. Achille Compte's Anatomical and Zoological series; also a large collection of drawings specially prepared for the school by Mr. Scott Leighton, artist, Boston, and Mr. Hawksett, Montreal.

The dissecting room is open at all hours, subjects are easily procured, and either the Professor or Demonstrator will be in attendance to superintend and direct students in practical dissection. The room is furnished with every convenience, is thoroughly lighted, and affords students all that can be reasonably desired.

Students are required to pay for the material necessary for practical anatomy.

Before a student can be allowed to present himself for his pass examination, he must procure tickets certified by the demonstrator that he has dissected two entire subjects,—that is, one each session.

Materia Medica and Therapeutics.

B. A. Sugden, D.V.S., Lecturer.

This course comprises a description of the physiological and therapeutic action of all the more important medicines used in Veterinary Practice, with a short reference to their general properties and principal preparations. It will also include a course in the practical work of compounding and administering medicines in the pharmacy and hospital. There will also be experimental demonstrations of the action of some of the more important drugs on animals.

Cattle Pathology and Obstetrics.

C. McEachran, D.V.S.

A special course on Cattle Diseases and Veterinary Obstetrics will be delivered, embracing the history of Cattle Plagues; their nature, symptoms, pathological anatomy, pro-

phylactic and therapeutic treatment; breeding and general management of breeding animals, disease incident to gestation and parturition, etc.

Special Course on Dogs.

Professor Wesley Mills will give a special Course on Dogs, which will include:—

(1) Lectures on the physical and psychic characteristics of all the leading varieties, illustrated by specimens, plates, etc.

(2) The principles of training; the feeding and general management of dogs.

(3) The principles of breeding; the management of brood bitches and the rearing of puppies.

(4) Bench show management and the public judging of dogs.

(5) The rights and duties of dog owners.

In all the above courses the clinical and pathological aspects of the subject will be considered, as well as the normal; also a regular clinic will be maintained.

The Museum

Contains a large collection of natural and artificial specimens, consisting of skeletons of almost all the domestic animals, numerous specimens of diseased bones, preparations by Dr. Auzoux of all the different organs in the body, natural dissections, colored models, diagrams, etc., etc., all of which are used in illustrating the lectures, and to which the students have frequent opportunities of referring. Students will also enjoy the privilege of the Museum of the Medical Faculty of McGill University, which is rich in pathological specimens.

The Pharmacy.

All the medicines used in the practice of the College are compounded by the Students, under the direction of the Pro-

fessors, from prescriptions for each particular case, and most of them are administered or applied by them. For this purpose they are detailed for certain pharmaceutical duties alternately. By this means they become familiar with the physical properties, compatibilities, doses and uses of the medicines, and become expert in administering them to the different patients brought for treatment. Attendance and practical work in the Pharmacy are compulsory.

The Practice.

The Hospital and Daily Clinics, as well as a very extensive out-door practice, including most of the largest stables in the city and numerous farms in the vicinity, afford excellent opportunities for clinical observation on horses of all breeds and ages. Owing to the numbers of cattle kept in the city, and the valuable thoroughbred herds in the neighbourhood, advanced Students are enabled to see and do considerable cattle practice. The dog practice is the largest in Canada. All canine diseases can be studied clinically, owing to the large number of dogs brought to the College for medical or surgical treatment.

Senior Students will be appointed to act alternately as dressers in the Hospital, and first and second year men must assist in administering medicines and at operations.

*Text Books.

The following text-books are recommended:—

Anatomy.—Chauveau's Comparative Anatomy; Strangeway's Veterinary Anatomy; McFadyean's Veterinary Anatomy; Dissector's Manual, Clement.

Physiology.—Physiology for Beginners by Foster & Shore; Prof. Mills' Text Book of Comparative Physiology; Class Laboratory Exercises, by the same author.

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* Students are advised not to buy text books extensively till after consultation with the Professor who teaches the subject.

Histology.—Klein's Elements; Schafer's Essentials of Histology.

Botany.—Gray's Structural Botany; Bessey's Botany.

Zoology.—Dawson's.

Chemistry.—Wurtz's Elementary Chemistry; Armstrong; Remsen's Organic Chemistry.

Medicine and Surgery.—Williams' Principles and Practice of Veterinary Medicine; Fleming's Sanitary Science and Police; Williams' Surgery; Fleming's Operative Surgery; Robertson's Equine Medicine; Liautard's Operative Veterinary Surgery; Zuill's Translation of Friedberger and Frôhner's Pathology, Moller's Veterinary Surgery (Dollar), etc.

Materia Medica.—Dun's Veterinary Medicines; Walley's Veterinary Conspectus; Tuson's Pharmacy; Hoare's Therapeutics.

Cattle Diseases.—Steel's Bovine Pathology; Clatter's Cattle Doctor (Armitage); Fleming's Veterinary Obstetrics; Steele on Sheep.

Canine Diseases.—Prof. Mills' The Dog in Health and in Disease.

Diseases of the Dog.—Geo. Müller, tr. by A. Glass, V.S.

Entozoa.—Cobbold's Entozoa of Domestic Animals.

Pathology.—Payne's Pathology; Fraenkel's Bacteriology; Clement on Post Mortems.

Veterinary Medical Association.

This Association is for the mutual improvement of its members in all matters pertaining to the profession.

Graduates and students of Veterinary Medicine and graduates and students of Human Medicine are eligible to membership.

The meetings are held fortnightly, at which papers are read and discussed, cases reported, etc.

The advantages which students derive from these meetings are very great. Not only do they hear carefully prepared papers on subjects of professional importance, but an opportunity is afforded for practising public speaking, which in after life is often extremely useful. The fees of the Association are expended in the purchase of books for the Library, drugs for experimental purposes, and the prizes awarded for papers read.

The Library is owned by the Association, and is under the control of officers who are elected annually. It contains nearly 600 volumes, embracing works of great antiquity, as well as the modern works on Veterinary Science and collateral subjects, in both the English and French languages, all of which are available for consultation and study by members.

Every student is expected to become a member. The entrance fee is $5, and the yearly subscription $2.50. A Diploma of Honorary Fellowship is conferred on all members who have complied with the regulations of the Association.

Association for the Study of Comparative Psychology.

This Society is similar in construction to the Veterinary Medical Association, and has a special library of about 100 volumes. Its object is the study of the Psychic Phenomena (intelligence, etc.) of all classes of animals, and the diffusion of sounder views on this subject. Naturally, it is of great importance in the practice of medicine upon dumb animals as well as of peculiar scientific interest.

Donations.

The late John Wesley Gadsden, M.R.C.V.S., of Philadelphia, Penn., U.S.A., generously donated to this Faculty his valuable library of nearly 400 volumes and the specimens of his private museum, many of which are of unusual value.

Qualifications for the Degree.

Candidates for the Final Examination shall furnish testimonials of attendance on lectures on the following subjects.

Either Botany or Zoology—One course of six months, 1st year.

Physiology, Histology, Anatomy, Chemistry — Two courses of six months, 1st and 2nd years.

General Pathology and Demonstrations, one course of six months.

Cattle Diseases and Obstetrics.

Practice of Medicine and Surgery. — Two courses, 2nd and 3rd year.

Materia Medica and Therapeutics.

No one will be permitted to become a candidate for examination who shall not have attended at least one full course of lectures in this Faculty, including all the subjects embraced in the curriculum. Courses of less length than the above will be received only for the time over which they have extended.

Students, except by special permission of the Faculty, must pursue the subjects of Anatomy, Physiology, Chemistry, Histology, and Botany or Zoology in their session.

Candidates of the 1st and 2nd years, who fail to pass in not more than two subjects, may be granted a supplementary examination at the beginning of the following session. Supplementary examinations will not be granted, except by special permission of the Faculty and on written application stating reasons, and on payment of a fee of $2.50, which must be paid prior to examination.

Candidates who fail to pass in a subject of which two courses are required, may, at the discretion of the Faculty, be required to attend a third course, and furnish a certificate of attendance thereon.

In addition to the written and oral examinations, candidates must pass a practical clinical test, including examination of horses for soundness, written reports being required; the clinical reports to include diagnosis, prognosis, and treatment.

The following oath or affirmation will be exacted from the candidate before receiving the degree:—I, —— ——, promise and solemnly declare that I will, with my best endeavors, be careful to maintain the interests of this University, and that, to the best of my ability, I will promote its honor and dignity.

Examinations.

First Year.—Pass Examinations in Botany or Zoology, Histology (oral), 1st Chemistry, Anatomy, Physiology, and on all other subjects in the course of this year.

Second Year.—Pass examinations in Chemistry, Physiology, Histology (written), and Anatomy, in addition to sessional examinations in these and the other subjects of the year.

Third Year.—Pass examinations in Practice of Medicine and Surgery, General and Special Pathology, Veterinary Obstetrics, Diseases of Cattle, and Materia Medica and Therapeutics and Anatomy.

Written and Oral Examinations will be held from time to time during the session, and attendance at these is compulsory. The standing attained at these examinations will be taken into account at pass examinations.

Age for Graduation.

Students under seventeen will be received as apprentices, but cannot be entered as regular Students before attaining that age.

Minors may pass the Examinations, but cannot receive the Diploma until they are twenty-one years of age.

Regulations Governing the Conferring of the Degree Upon Former Graduates of the Montreal Veterinary College.

The Degree of Doctor of Veterinary Science may be conferred on former graduates of Montreal Veterinary College at any Convocation of McGill University held for conferring degrees, subject to the following regulations, which were adopted at a meeting of the Corporation of McGill University, held on the 22nd January, 1890, governing the conferring of Degrees on former graduates:—

1st.—That the candidate must be found to have conducted himself throughout his professional career with honor and integrity.

2nd.—That he has not been connected with the manufacture or sale of proprietary medicines.

3rd.—That he has been engaged in actual practice for at least one year since graduating, or that he has been engaged in professional study at some European school.

4th.—That he shall be required to satisfy the Board that he has made reasonable progress in professional knowledge and skill.

In estimating the fitness of a candidate for a degree, account will be taken specially of work done in professional teaching, original research, publication of books or contributions to the journals of the profession.

The fee for the Diploma shall be Twenty Dollars.

An affirmation shall be administered similar to that of other Faculties, and in English.

The Degree may be conferred on absentees.

The regulations relating to fees and affirmations shall apply to ordinary undergraduates on taking the degree.

Graduates intending to apply for the Degree of D.V.S. should notify the Registrar of the Faculty at their earliest convenience, and at the same time state the grounds explicitly on which they base their claims for the Degree.

McGill Normal School.

The McGill Normal School, in the city of Montreal, is established chiefly for the purpose of training teachers for the Protestant population, and for all religious denominations of the Province of Quebec other than the Roman Catholic. The studies in this school are carried on chiefly in English, but French is also taught.

Government of the School.

The Corporation of McGill University is associated with the Superintendent of Public Instruction in the direction of the McGill Normal School, under the regulations of the Protestant Committee of the Council of Public Instruction, and it is authorized to appoint a standing committee consisting of five members, called the "Normal School Committee," which shall have the general supervision of the affairs of the Normal School. The following members of the Corporation of the University constitute the committee of the Normal School for the Session of 1901-1902.

Normal School Committee.

PROF. W. PETERSON, M.A., LL.D., Principal of the University, Chairman.

MR. SAMUEL FINLEY, Governor of McGill College.

J. R. DOUGALL, M.A.,
REV. PRINCIPAL MACVICAR, D.D., LL.D.,
REV. E. I. REXFORD, B.A.,
} Fellows of McGill University.

J. W. BRAKENRIDGE, B.C.L., Secretary.

Officers of Instruction.

MCGILL NORMAL SCHOOL.

SAMPSON PAUL ROBINS, M.A., LL.D., D.C.L., Principal and Ordinary Professor of Mathematics and Lecturer on Art of Teaching.

ABNER W. KNEELAND, M.A., B.C.L., Ordinary Professor of English Language and Literature.

MADAME SOPHIE CORNU, Professor of French.
MISS GREEN, Professor of Drawing.
MISS LILLIAN B. ROBINS, B.A., Assistant to the Principal and Instructor in Classics.
MR. W. H. SMITH, Instructor in Tonic Sol-Fa.
MR. JNO. P. STEPHEN, Instructor in Elocution.
PROF. D. P. PENHALLOW, M.A.Sc., Lecturer on Botany.
NEVIL N. EVANS, M.A.Sc., Lecturer on Chemistry.
HOWARD L. BARNES, D.Sc., Lecturer on Physiology and Hygiene.
MR. JAMES WALKER, Instructor in Penmanship and Book-keeping.
MISS LOUISE DERICK, Instructor in Kindergarten Methods.
MR. A. W. ARTHY, Lecturer in the Theory of Kindergarten and Transition Work.

Model Schools of the McGill Normal School.

E. MONTGOMERY CAMPBELL, B.A., Head Master of Boys' School.
MISS MARY I. PEEBLES, Head Mistress of Girls' School.
MISS SELINA F. SLOAN, Head Mistress of Primary School.

Announcement for the Session, 1901-1902.

This Institution is intended to give a thorough training to teachers, by instruction and training in the Normal School itself, and by practice in the Model Schools; and the arrangements are of such a character as to afford the greatest possible facilities to students from all parts of the province. Hereafter the Protestant Central Board of Examiners for the Province of Quebec will grant diplomas only to teachers-in-training of this Institution and to graduates of British or Canadian Universities.

The forty-sixth Session of this School will commence on the second of September, 1901, and close on the thirtieth of May, 1902. The students are graded as follows :

1.—*Elementary Class.*—Studying for the Elementary Diploma.
2.—*Advanced Elementary Class.*—Studying for the Advanced Elementary Diploma.

To meet the requirements of graduates and undergraduates in Arts, who, not having previously taken a Normal School course, desire to receive Academy diplomas, and until the Universities themselves undertake the work, provision has been made for the delivery of a course of lectures on pedagogy in the Normal School, and for practice in teaching in the McGill Model School for fifty half days, open to graduates in Arts of any British or Canadian University, to undergraduates of the third year, and, with the permission of the Faculty and the concurrence of the Principal of the Normal School, to those of the fourth year. The hours assigned for these lectures are from 3 p.m. to 4 p.m. on each Tuesday and Friday on which lectures are given in the Faculty of Arts. An examination on this course of lectures is held annually on the 20th day of May, or on the school day next succeeding that date ; the hours are from 10 a.m. to 12 noon.

Undergraduates will be permitted to teach the fifty half days referred to above, at times extending over the sessions of the Model School, corresponding to the third and fourth years of their college course. Graduates will be permitted to teach in the Model Schools at such times as may be agreed on with the Principal. Those who teach in the Model Schools are expected to prepare all lessons and discharge all duties assigned them with faithfulness. Failure to teach or to govern in the Model Schools, no less than failure to pass the examination on the course of lectures, endangers the Academy Diploma.

Each person taking this course of study in the Normal School shall be held to be subject to the regulations of the said school and to be under the supervision of its Principal while in attendance thereat, and is required to furnish him with all necessary certificates of standing and of good character, as well as to pay to the Secretary of the Central Board of Examiners the fee of $4.00 before entering on the Course.

3.—*Model School Class.*—Studying for the Model School Diploma.

4.—*Kindergarten Class.*—Studying for the Kindergarten Diploma.

5.—*Class in Pedagogy.*—Preparing for the Academy Diploma.

Detailed information respecting the courses of the four grades first enumerated above may be obtained on application to the Principal of the School, 32 Belmont Street, Montreal.

Academy Diplomas to Graduates.

All holders of model school diplomas that have been granted by the McGill Normal School or that shall hereafter be granted by the Central Board of Examiners, shall be entitled to receive academy diplomas on graduating in Arts at some Canadian or other British University, provided that they pass in Mathematics, Latin, Greek and French at the degree examinations, or failing this, in any subject or subjects, pass in such subject or subjects examinations certified by the universities to give to the graduate concerned a standing not lower than that of second class at the close of the second year in Arts.

All graduates in Arts of Canadian or other British Universities who have passed in Mathematics, Latin, Greek and French as above defined, and have taken a course and have passed satisfactory examinations in education and in practical teaching under the control of the Universities or of the McGill Normal School, as approved by the Protestant Committee of the Council of Public Instruction, shall be entitled to receive academy diplomas. The Central Board of Examiners shall determine who have passed satisfactory examinations in education and in practical teaching in view of the results, which, including examination questions and answers, shall be remitted to the Board by the university examiners, and in view of the recommendations of the professors of education. The Central Board of Examiners is empowered to set one-half of the questions on education, and to prescribe tests of ability to teach and to govern, which must be followed in such examinations.

University Examinations.

SESSION 1899-1900.

Faculty of Law.

PASSED FOR THE DEGREE OF B.C.L.

(In order of merit.)

Chauvin, Henry N., Montreal.
Archibald, Sam. G., B.A., Montreal.
Macfarlane, L., B.A., Montreal.
Garneau, L., Ottawa.
Macalister, A. W. G., Danville, Q.
Baker, Geo. H., Sweetsburg, Q.
Margolese, L., Montreal.
Rinfret, T., Montreal.
Walsh, Thos. E., B.A. (Laval), Montreal.
Redpath, Jocelyn C., Montreal.
Mackay, Hugh, Montreal.

Faculty of Arts.

PASSED FOR THE DEGREE OF B.A.

In Honours.

(*In alphabetical order.*)

First Rank.—Cook, H. Lester.
Crowell, Bowman C.
Dey, M. Helena.
Garlick, Edythe A.
Johnson, J. Guy Watts.
McGregor, Claire R.
Marcuse, Bella .
Newson, Wm. V.
Nutter, J. Appleton.
Radford, E. Alan.
Weinfield, Henry.
Willis, Jas. J.
Woodley, Edward C.

Second Rank.—Cochrane, Donald.
Cohen, Abraham.
Forbes, Wilfrid.
Hardy, Chas. A.
Jackson, E. Gertrude.
Macmillan, Cyrus J.
Rorke, Helen.

ORDINARY B.A.

(In order of merit.)

Class I.—Ferguson, Colin C.
Elder, Robert.
Rowell, Arthur H.

Class II.—Lee, Henry S.
Smith, Lillian A.
Mackinnon, Cecil G.
Ells, Sydney C.
Grier, Geo. W.
Lundie, Jessie F.
Holman, Carrie E.
Ainley, Lawrence.
Crack, Isaac E.
DeWitt, Jacob.

Class III.—Perley, Francis B.
Stewart, Donald.
Laverie, Jas. H.
Fyles, Faith.
Duguid, R. Colin.

STUDENT REGISTERED IN THE FACULTY OF APPLIED SCIENCE PROCEEDING TO THE DEGREE OF B.A. IN COURSE.

McKenzie, Bertram S.

STUDENTS REGISTERED IN THE FACULTY OF MEDICINE PROCEEDING TO THE DEGREE OF B.A. IN COURSE.

Dixon, James D.
Larmonth, Geo. E.

B.A. IN ABSENTIA.

Meiklejohn, Harriet T.

STUDENTS IN ARTS REGISTERED IN THE MEDICAL FACULTY WHO WILL BE QUALIFIED TO OBTAIN THE DEGREE OF B.A. IN JUNE, 1900, ON COMPLETING THEIR MEDICAL YEAR.

(*In alphabetical order.*)

Ritchie, C. F. Walker, H.

B.A. (SPECIAL).

Oakeley, Hilda D.

ADMITTED TO THE DEGREE OF B.SC. (AD EUNDEM GRADUM).

Rutherford, E., B.Sc. (N.Z.)

BACHELORS OF ARTS PROCEEDING TO THE DEGREE OF M.A. IN COURSE.

Oakeley, Hilda D.
Hammond, Elizabeth, B.A.
Vaudry, Olive, B.A.
Carr, Muriel, B.A.
Keith, Henry J., B.A.

BACHELOR OF ARTS PROCEEDING TO THE DEGREE OF M.SC. IN COURSE.

Dover, Mary Violette, B.A.

ADMITTED TO THE DEGREE OF M.A. (AD EUNDEM GRADUM).

Cole, W. G., M.A. (Harv.).

MASTER OF ARTS PROCEEDING TO THE DEGREE OF D.SC.

Barlow, Alfred, M.A.

ADMITTED TO THE DEGREE OF LL.D. (HONORIS CAUSA).

Barker, Geo. F., Prof. of Physics in the University of Penn.
Mahan, Alfred T., Captain, U.S.N.
Whiteaves, J. F., F.R.S.C., Geological Survey, Ottawa.

INTERMEDIATE EXAMINATION.

Class I.—Crowell, S. G.
Harris, S. L. D.
Irving, Elizabeth.
Nolan, Annie W. } equal
Plant, V. L. } equal
Pruyn, W. G.
Munn, W. C.

Class II.—Carlyle, E. J. } equal
Murphy, H. H. } equal
Dixon, Jennie D.
Warriner, J. Eva.
Hitchcock, Caroline L. } equal
Jack, M. } equal
McDonald, J. A. } equal
McLachlan, Jessie W.
Clogg, Vivian E. } equal
Ellison, Ada A. } equal
Walker, J. J.
Cole, G. E. } equal
Miller, W. E. } equal
Smith, Miriam G. } equal
Bickerdike, May C.

Class III.—Carson, H. A.
Greenleese, Mary S. } equal.
Muir, K. C.
Munn, E. M.† }
Ascah, R. G. }

Fox, F. H. }
Crothers, H. R. }
Adams, C. A.
Blagrave, R. S. (*s.*)
Day, Daisy W. (*s.*).
Ireland, F. C. (*s.*).
Ogilvie, G. L. (*s.*).
Parker, D. T. (*s.*).

Faculty of Applied Science.

PASSED FOR THE DEGREE OF BACHELOR OF SCIENCE.

(In order of merit.)

CIVIL ENGINEERING.

Ewart, George Robert, Kilauea, Kanai, Hawaiian Islands.
Byers, Archibald Fullarton, Gananoque, Ont.
Burgoyne, Stanley John, Halifax, N.S.

ELECTRICAL ENGINEERING.

Allen, Samuel James, Maitland, N.S. }
Nelson, George John, Montreal. } equal.
Duncan, Gaylen Rupert, Montreal.
Glassco, Jack Girdlestone, Hamilton, Ont.
Miller, Angus Kenneth, Bridgeburg, Ont.
St. George, Harry Luxmoore, Montreal.
Cornwall, Clement Arthur Kingscote, Ashcroft, B.C.
Montgomery, George, Morrisburg, Ont.
Fraser, John William, Bridgeville, N.S.

Shepherd, Harry Lawrence, Brockville, Ont. (aegrotat).

MECHANICAL ENGINEERING.

Hamilton, George Milne, Peterboro, Ont.
Walker, Frank Wilkes, Montreal.
Arkley, Lorne McKenzie, East Angus, Que.
Macmaster, Arthur William, Montreal.

† Morrin College.
s. With Supplemental in one subject (arranged alphabetically).

Neville, Thomas Patrick Joseph, Halifax, N.S.
Smith, George Barnett, Stratford, Ont.
Osborne, James Ewart Kerr, Toronto, Ont.

Also (special) :

Percy, Howard Meredith, Montreal.

MINING ENGINEERING.

Gillean, Robert Hampson, Montreal.
Robertson, Philip Wm. Katthain, Mexico City, Mex.
Corriveau, Raoul de Besserer, Iberville, Que.
Moore, Ernest Vivian, Peterboro, Ont.
Maclennan, Frank William, B.A.Sc., Cornwall, Ont.
Cowans, Frederick, Montreal.
Buchanan, Fitzherbert Price, Montreal.
Nicholls, Harry Graburn, Toronto, Ont.
Stevens, Angus Pattee, Dunham, Que.
(also, in alphabetical order):
Allan, Leigh, Tacoma, Wash, U.S.A.
Andrewes, Edward, Grimsby, Ont.
Leman, Beaudry, Montreal.

PRACTICAL CHEMISTRY.

Barber, Rene Raoul, Georgetown, Ont.

ADMITTED TO THE DEGREE OF BACHELOR OF SCIENCE.

(Ad eundem.)

Owens, Robert Bowie, E.E. (Columbia, Johns Hopkins.)
Rutherford, Ernest, M.A., B.Sc. (N.Z.).

ADMITTED TO THE DEGREE OF MASTER OF SCIENCE.

(In Course.)

Coker, Ernest George, B.Sc. (Cambridge, Edinburgh and McGill.)
Hutchinson, William Scott, B.Sc. (McGill.)
Kirkpatrick, Stafford Frederick, B.Sc. (McGill.)
Owens, Robert Bowie, B.Sc. (Columbia, Johns Hopkins, McGill.)
Rutherford, Ernest, B.Sc. (N.Z. and McGill.)
Stovel, Russell Wellesley, B.A.Sc. (McGill.)
Whiteside, Orton Edward Simpson, B.A.Sc. (McGill.)
Yuile, Norman McLeod, B.Sc. (McGill.)

ADMITTED TO THE DEGREE OF DOCTOR OF SCIENCE.

(In Course.)

Barnes, Howard Turner, M.Sc. (McGill.)

Faculty of Medicine.

PASSED FOR THE DEGREES OF DOCTOR OF MEDICINE AND MASTER OF SURGERY.

(*In alphabetical order.*)

Akerley, A. W. K., Fredericton, N.B.
Armstrong, J. W., B.A., Bristol, Que.
Baird, J. A., Brucefield, Ont.
Ballantyne, C. T., Ottawa, Ont.
Beadie, W. D., Lachine Locks, Que.
Bishop, T. E., Harvey Bank, N.B.
Bradley, J. H., Charlottetown, P.E.I.
Brown, E. L., Chesterville, Ont.
Buffett, C., B.A., Grand Bank, Nfld.
Burnett, P., Montreal, Que.
Carnwath, J. E. M., Riverside, N.B.
Charlton, A. J., Montreal, Que.
Chisholm, G. A., New Glasgow, N.S.
Clemesha, W. F., Port Hope, Ont.
Coffin, J. D., Charlottetown, P.E.I.
Conroy, R. J., Peterboro, Ont.
Cook, C. R., Montreal, Que.
Costello, A. E., Montreal, Que.
Cowperthwaite, W. M., Carboneer, Nfld.
Cox, J. R., Hull, Que.
Cuzner, G., Ottawa, Ont.
Donnelly, A. J., B.A., Sturgeon, P.E.I.
Doull, A. E., Halifax, N.S.
Duffy, P. F., Charlottetown, P.E.I.
Eagar, W. H., Dartmouth, N.S.
Freeman, C. H., B.A., Milton, N.S.
Fourney, F. W., Montreal, Que.
Gilday, A. L. C., B.A., Montreal, Que.
Gray, H. R. D., B.A., Montreal, Que.
Hall, A. R., Washington, Ont.
Haszard, C. F. L., Charlottetown, P.E.I.
Henry, C. K. P., Ottawa, Ont.
Hiebert, G., Gretna, Man.
Hill, W. H. P., Montreal, Que.
Jardine, J., Freetown, P.E.I.
Jones, H. A., B.A., Moncton, N.B.
Kannary, E. LeR., B.A., Northfield, Minn.
Keating, B. H., Moore, Ont.
Keating, H. T., Moore, Ont.
Lockhart, F. A. L., Montreal, Que.
McAuley, A. G., Ventor, Ont.
McConnel, R. E., B.A., Montreal, Que.
McDiarmid, W. B., Maxville, Ont.
McDonald, W. F., Westville, N.S.

McDougall, A., Kippen, Ont.
McKee, S. H., B.A., Fredericton, N.B.
McSorley, H. S., Enderby, B.C.
Martin, L. W., Warden, Que.
Morrison, A. S., Montreal, Que.
Morrison, G. D., Vankleek Hill, Ont.
Morrow, J. J., Fergus, Ont.
Murray, L. M., Truro, N.S.
Mussen, A. T., Lachine, Que.
Paintin, A. C., Mansonville, Que.
Paterson, W. F., B.A., Montreal, Que.
Pattee, F. J., Vankleek Hill, Ont.
Patton, J. W. T., Ponds, N. S.
Payne, R. H., Kingston, Jamaica.
Peake, E. P., B.A., Oshkosh, Wis.
Pope, E. L., B.A., Belleville, Ont.
Porter, A. S., Powassan, Ont.
Richard, F. A., B.A., Richibucto, N.B.
Ross, H., B.A., Montreal, Que.
Rowley, W. E., B.A., Marysville, N.B.
Rutherford, A. E., London, Eng.
Sayre, T. D., Amherst, N.S.
Secord, E. R., Brantford, Ont.
Shaughnessy, C. R., St. Stephen, N.B.
Stevenson, H. R., Danville, Que.
Todd, J. L., B.A., Victoria, B.C.
Turnbull, J. A., Bear River, N.S.
Turner, W. G., Quebec, Que.
Townshend, C., Parrsboro, N.S.
Wilson, W. A., Carleton Place, Ont.
Wood, D. F., Faribault, Minn.

GRADUATES IN MEDICINE, QUALIFIED FOR THE DIPLOMA IN LEGAL MEDICINE.

Baird, J. A.
Eager, W. H.
Gilday, L. C.
Gray, H. R. D.
McConnell, R. E.
Pattee, F. J.
Payne, R. H.
Rutherford, A. E.
Kannary, E. L.
Turner, W. G.
Todd, J. L.
Wilson, W. A.
Wood, D. F.

Faculty of Comparative Medicine and Veterinary Science.

PASSED FOR THE DEGREE OF D.V.S.

Humphries, B. F., Boston, Mass.
Stanbridge, G. W., Hubbardston, Mass.
Allan, F. T., Springfield, Mass.
Smith, W. C., Winnipeg, Man.

Scholarships and Exhibitions.

SESSION 1900-1901.

FACULTY OF ARTS.

I. Scholarships (Tenable for two years.)

Year of Award.	Name of Scholars.	Subjects of Examination.	Annual Value.	Founder or Donor.
1899	Barrington, Fred H.	Mathematics	$125	Sir W. C. Macdonald
1899	MacNaughton, W. G.	Natural Science	125	Sir W. C. Macdonald
1899	Copeman, Jos. Hodge	Classics and Mod. Lang.	100	Anonymous
1899	Cotton, Wm. U.	Classics and Mod. Lang	90	Anonymous
1900	Crowell, Sam. G.	Mathematics	125	Sir W. C. Macdonald
1900	Harris, Spencer Dale	Natural Science	125	Sir W. C. Macdonald

II. Bursaries.

1900	Jack, Milton	Classics and Mod. Lang.	$50	Sir W. C. Macdonald
1900	Munn, W. Clement	Classics and Mod. Lang.	50	Sir W. C. Macdonald

II. Exhibitions (Tenable for one year.)

Names of Exhibitioners.	Academic Year.	Annual Value.	Founder or Donor.
Lundie, Helen	Second	$140	Anonymous
Bovey, Wilfrid	"	125	Sir W. C. Macdonald
Wisdom, Katherine F.	"	125	Lord Strathcona
Healy, Walter J.	"	125	Geo. Hague, Esq.
Parkin, Maude E.	"	*200	Lord Strathcona
Archibald, John G.	First	200	Anonymous
Rose, Herbert J.	"	200	Anonymous
Sheldon, Ernest W.	"	150	Anonymous
Bell, Herbert	"	150	Anonymous
McCallum, Orick B.	"	150	Anonymous
McCally, Mary Kathleen	"	100	Anonymous
McGougan, Edward	"	125	Sir W. C. Macdonald
Laing, Allan	"	125	Sir W. C. Macdonald
Gurd, Fraser B.	"	125	Sir W. C. Macdonald
Brown, Wm. G.	"	125	Sir W. C. Macdonald
Simpson, Edith P.	"	100	Lord Strathcona
Mackenzie, Catherine I.	"	100	Lord Strathcona
Cousineau, V. M.	"	100	Sir W. C. Macdonald
Shanks, George	"	100	Anonymous
Hart, Ethel M.	"	100	Lord Strathcona
Fenwick, Gladys	"	100	Lord Strathcona
Marshall, Wm. W.	"	90	Mrs. Redpath
Freeze, Helen L.	"	*200	Lord Strathcona
Wilson, Alice M.	"	75	Lord Strathcona

* Conditional on residence in the Royal Victoria College.

Students of the University.

SESSION 1900-1901.

McGILL COLLEGE.

Faculty of Law.

FIRST YEAR.

Name.	*Residence.*
Angus, David James	Montreal.
Bergeron, Patrick John	Stanstead, Q.
Blaylock, Harry W.	Danville, Q.
Butler, William H.	Montreal.
Casgrain, Alex. Chase	Montreal.
De Lorimier, Jos. G. G.	Montreal.
†Gordon, Herbert F.	Montreal.
Gossalin, Louis	Notre Dame de Stanbridge, Q.
Madore, Louis	Montreal.
MacKinnon, Cecil Gordon	Cowansville, Q.
Nott, Edward Vernon	Montreal.
Orr, Henry Stanley	Cookshire, Q.
Rankin, Arthur G. Ernest	Montreal.
Rugg, Frederick S.	Stanstead, Q.
‡Stuart, E. D. C.	Montreal.
Tansy, Thomas M.	Montreal.
Theberge, Albert	St. Jerome, Q.
Weinfield (B.A.), Henry	Montreal.

SECOND YEAR.

Astle, Thomas Francis	Little Metis, Q.
Aylmer, Henry U. P.	Richmond, Q.
Bonin, Alexander L.	Montreal.
Brown, Ernest N.	Lachine, Q.
Cotton, Charles Mackay	Sweetsburg, Q.
Couper, William Mason	Montreal South.
Draper, Dennis C.	Sutton Jct., Q.
Duff, Alexander Huntley	Montreal.
Gariépy, Wilfrid	Edmondton, Alba.
Ogden, Charles G.	Three Rivers, Q.
Staveley, Wm. R.	Montreal.
Vipond, Herbert S.	Montreal.
Wainwright, Arnold	Montreal.

THIRD YEAR.

Baby, Henri	Montreal.
Barlow, Jos. C.	Montreal.
Beique, Fred.	Montreal.
Burcovitch, P.	Montreal.

† Partial. ‡ Conditioned.

Name.	*Residence.*
Burke, Edmund A.	Montreal.
Campbell, G. A., B.A. (McGill)	Montreal.
Curran, Louis E.	Montreal.
Doak, A. E.	Coaticook, Q.
Dobell, Alf. C.	Quebec, Q.
Enright, Fredk. T.	Sherbrooke, Q.
Holden, A. R., B.A., B.Sc. (McGill)	Montreal.
Kay, W. F.	Phillipsburg, Q.
McCabe, E. P. F.	Windsor Mills, Q.
McMaster, A. R., B.A.	Montreal.
McMichael, R. C.	Windsor Mills, Q.
Mann, J. A.	Montreal.
Meagher, J. J.	Montreal.
Mitchell, W. G.	Danby, Q.
Moffat, D. S., B.A. (McGill)	Inverness, Q.
Normandin, Z.	St. Henri, Q.
Place, E. G.	Millington, Q.
Rowat, D. McK.	Athelstan, Q.
Skinner, Waldo W.	St. John, N.B.
Springle, Hobart, A.	Montreal.
Thomson, A. B.	Montreal.
Thompson, J. R.	Kinnear's Mills, Q.
Trihey, H.	Montreal.
Westover, E. W.	Sutton, Q.
Whelan, J.	Montreal.

Faculty of Medicine.

FIRST YEAR.

Ainley, L. T., B.A.	Almonte, Ont.
Ainley, W. E., B.A.	Bermuda.
Alford, H. J.	Ottawa.
Atkinson, H. S.	Capids, Nfld.
Bentley, J. S., B.A.	Truro, N.S.
Black, C.	Oxford Station, Ont.
Blanchet, S. F. N.	Ottawa.
‡Bleasdell, W. A.	Fort Steele, B.C.
Billings, W. H.	Hamilton, Ont.
Bonin, P. R.	Montreal.
Bulmer, A. M.	Montreal.
Cameron, A. B.	Lancaster, Ont.
†Charman, F. D.	Wallace, N.S.
Chipman, W .W.	Ottawa.
Coffin, J. W.	Mount Stewart, P.E.I.
Cook, W. J.	Coboconk.
†Covernton, C. F.	Montreal.
Crack, I. E., B.A.	Kingsbury, Q.
Crowell, B. C., B.A.	Yarmouth, N.S.
Cunningham, F. J.	Montreal.
Dalton, J. T.	St. John, N.B.
Davidson, H. D.	Sherbrooke, Q.
Dillon, W. P.	Iroquois, O.
Douglas, E. D., B.A.	Halifax, N.S.
‡Dunn, J. F.	Elgin, Ont.
Eaton, C. E.	Stanbridge, Q.
‡Eaton, F. C.	Hancock, N.H.
Ernandez, J. A.	Spanish Town, Jamaica.

‡ Conditioned. † Partial.

Name.	*Residence.*
Faulkner, J. A., B.A.	Stirling, Ont.
Fisher, E. M.	Bluebonnets, Q.
Ford, H. S.	Vancouver, B.C.
‡Fraser, S.	Leeds, Q.
*Fripp, G. D.	Montreal.
‡Froomess, L. E.	Montreal.
Fyshe, J. C., A.B.	Montreal.
Geddes, R. W., B.A.	Deseronto, Ont.
Gibson, G. M.	Huntingdon, N.Y.
Gibson, R.	Nanaimo, B.C.
Gill, F. D. B.	St. John's, Nfld.
Gillis, J. E.	Darlington, P.E.I.
Gilroy, J. R.	Springhill, N.S.
Gormely, J. C.	Morrisburg, Ont.
Graham, R. W.	Sawyerville, Q.
†Grant, N. P.	Woodstock, N.B.
*Gray, E. H.	Montreal West, Q.
Greenwood, W. T.	St. Catharines, Ont.
Gunn, A. K.	Lancaster, Ont.
‡Hand, W. T.	Montreal.
Hare, W. G.	Moscow, Ont.
Harrison, L. L., B.A.	Maccan, N.S.
†Hewett, T. J.	Montreal.
Hogan, F. J.	North Cape, P.E.I.
Hotchkiss, E. A.	Collinsville, Conn.
Howitt, H. O.	Guelph, Ont.
Hughton, M.	Arnprior, Ont.
Humphrey, G. A.	Montreal.
Hunter, J. D.	Victoria, B.C.
Johnson, J. G. W., B.A.	Montreal.
Judson, A. H.	Lynn, Ont.
Keys, M. J.	Hulbert, Ont.
Lacasse, L. J.	Campbellton, N.B.
Lauchland, L. C., B.A.	Oshawa, Ont.
Lawson, G. E.	Grand Manan, P.E.I.
Lincoln, W. A.	Stanstead, Q.
Lippiatt, H. T.	Abbotsford, Q.
Losier, A. J.	Tracadie, N.B.
MacCallum, J. D. G.	Montreal.
‡Macdonald, J. P.	Ste. Agathe des Monts, Q.
Mackenzie, A. B.	Springfield, P.E.I.
†Mackid, L. S.	Calgary, Alta.
‡McCormick, J. P.	Ottawa.
*McDonald, J. A.	Valleyfield, Q.
McDonald, J. C.	Peak's Station, P.E.I.
McDougall, W. L.	Cornwall, Ont.
McInerney, D. C.	Kingston, N.B.
McIntosh, L. de C.	Iroquois, Ont.
McKenty, F.	Bath, Ont.
McLachlan, D. C.	Lochabar Bay, Q.
McLeod, J. A.	Dunvegan, Ont.
McLeod, W. A.	Finch, Ont.
McMicking, A. E. T.	Victoria, B.C.
McNee, J. E.	London, Ont.
‡Margolese, O.	Montreal.
Martin, J. C.	Whitechurch, Ont.
Meakins, J. C.	Hamilton, Ont.
Miller, C.	Stellarton, N.S.
Miller, V. L., B.A.	Bear River, N.S.

‡ Conditioned. * Double Course. † Partial.

Name.	*Residence.*
Muir, K. C.	Huntingdon, Q.
*Murphy, H. H.	Antrim, Ont.
Nagle, S. M.	Almonte, Ont.
Nutter, J. A., B.A.	Montreal.
Preston, C. E.	Ottawa.
Price, J.	Verdun, Q.
*Pruyn, W. G.	Napanee, Ont.
Quain, B. P.	Moira, N.Y.
Raftery, C. R.	Montreal.
Rankin, A. C.	Montreal.
Reford, L. L.	Montreal.
Richardson, C. A.	Jefferson, Maine, U.S.A.
‡Rilance, C. D.	Lachine, Q.
Robinson, J. L.	St. Marys, Ont.
Rogers, J. T., B.A.	Montreal.
Sellery, A. C.	Kincardine, Ont.
Shaw, D.	Cove Head, P.E.I.
Sibbald, J. P. M.	Sutton West, Ont.
Sims, H. A.	Montreal.
Smith, W. A., B.A.	Almonte, Ont.
Stewart, J. A.	Norboro, P.E.I.
†Styles, W. A. L.	Montreal.
Warwick, W.	St. John, N.B.
Waterman, C.	Ogdensburg, N.Y.
‡Wigle, C. A.	Wiarton, Ont.
Wilson, O. M.	Smiths Falls, Ont.
Winfrey, W. W., B.L.	Sault Ste. Marie, Michigan.
Wood, H. G.	Faribault, Minn.
Wood, W. H.	Westmount, Q.
†Woodcock, P. F.	Brockville, Ont.
‡Wotherspoon, H.	Montreal.
Wright, G. A.	Stony Creek, N.B.
Yeo, I. J.	Charlottetown, P.E.I.
Yorston, F. P.	Newcastle, N.B.
‡Young, G. J.	St. Margaret's Bay, N.S.

SECOND YEAR.

Allan, R. H.	Montreal.
Allum, A. W.	Renfrew, Ont.
Anderson, C. W., B.A.	Halifax, N.S.
Andrews, J. J.	St. Lambert, Q.
Arnold, D. R., B.A.	St. John, N.B.
Auston, J. B.	Brighton, Ont.
Bailey, G. W.	Fredericton, N.B.
Bishop, G. A.	Kinburn, Ont.
Blakeman, F. W.	Stratford, Ont.
Boyd, O.	Russell, Ont.
*Boulter, J. H.	Picton, Ont.
Briggs, J. A.	New Westminster, B.C.
Bromley, J. E.	Pembroke, Ont.
Brooks, J. E., B.A.	Eastport, Maine, U.S.A.
Burns, A. S., B.A.	Kingston Station, N.S.
Campbell, W. G.	Brantford, Ont.
Cary, W. H.	Montreal.
Chamberlain, H. B.	Perth, Ont.
Chandler, E. C.	Montreal.
Chaplin, H. L. S.	St. John's, Nfld.
Church, H. C.	Chelsea, Q.
Cowperthwaite, H. H.	St. John's, Nfld.

* Double Course. ‡ Conditioned. † Partial.

Name.	*Residence.*
Croft, L. V., B.A.	Middleville, Ont.
Crosby, P. C.	Marshfield, P.E.I.
Cumming, W. G., B.A.	Montreal.
Dickson, A. J., B.A.	Goderich, Ont.
Dickson, W. H.	Pembroke, Ont.
Donnelly, William H.	Ogdensburg, N.Y.
Doyle, F. H., B.A.	Natick, Mass., U.S.A.
Ebbett, L. P. B.	Lower Gagetown, N.B.
*Elder, R.	Trout River, Q.
Ells, R. H., B.A.	Ottawa.
English, J. M.	New Westminster, B.C.
Fisher, F., B.A.	Bay of Islands, Nfld.
Forbes, R. D.	Stratford, Ont.
Ford, W. S.	Belleville, Ont.
Fortin, C. E. F., B.A.	Winnipeg, Man.
Freeze, E. H.	Penobsquis, N.B.
Frost, A. C.	Montreal.
Fuller, H. T.	Halifax, N.S.
Gale, W. P.	Quebec, Q.
Gillis, J. H.	Campbellton, N.B.
Gilmore, C. R.	Brockville, Ont.
Gow, R. J.	Warkworth, Ont.
Gurd, R. D.	Sarnia, Ont.
Hansen, N. C., M.A.	Portland, Maine, U.S.A.
Hardisty, R. H. M.	Montreal.
Hawker, J. E.	St. John, N.B.
Horsfall, F. L.	Montreal.
Hutchinson, J. W.	Montreal.
Hynes, W. T.	Darnley, P.E.I.
Inksetter, F. S.	Dundas, Ont.
Kenny, R. W.	Ottawa.
Kerr, H. H.	Washington, D.C., U.S.A.
King, R., B.A.	Sackville, N.B.
Kissane, J. W.	Chateaugay, N.Y., U.S.A.
Lamb, W. V.	St. Andrews, N.B.
Langsford, A. W.	Cameron, Ont.
Laurie, E., B.A.	Montreal.
Lundie, J. A., B.A.	Montreal.
Lyman, W. S.	Knoxville, Tenn., U.S.A.
Lynch, A. L.	Britannia Bay, Ont.
Macdonald, R. St. J., B.A.	Bailey's Brook, N.S.
Mackenzie, W. A.	Wood Islands, P.E.I.
MacMillan, T. F.	Montreal.
MacNeill, A. L. H.	Charlottetown, P.E.I.
McCulloch, J. M.	Durham, Ont.
McDiarmid, C. A.	Kemptville, Ont.
McDonald, S., B.A.	St. John, N.B.
McEachern, J. W. T.	Rockland, Ont.
McEwen, J. R.	Dewettsville, Q.
McGeachy, J. A. M.	Iona, Ont.
McGillis, J. D.	Montreal.
McGrath, F. C.	Norway, P.E.I.
McGuigon, J. D.	Kelly's Cross, P.E.I.
McInerney, D. C.	Kingston, N.B.
McIntosh, H. H.	Montreal.
McIntosh, J. A.	Vankleek Hill, Ont.
McKechnie, D. W.	Dundas, Ont.
McLaren, D. D.	Felton, Ont.
McLaughlin, E. M.	Winona, Minn., U.S.A.

* Double Course.

Name.	*Residence.*
McNeil, W. C.	New York, N.Y.
McPherson, T.	Stratford, Ont.
Maby, W. J.	Cohoes, N.Y., U.S.A.
Magee, C. F.	North Gore, Ont.
Maillet, H. A.	Bute City, Montana, U.S.A.
Markson, S.	Glen Robertson, Ont.
Meindl, A. G.	Mattawa, Ont.
Mitchell, J. E.	Sherbrooke, Q.
Montgomery, C. H.	St. John, N.B.
Moore, P. T., B.A.	Montreal.
Morris, S. C.	Wallace, N.S.
Munro, J. H.	Maxville, Ont.
Munroe, H. B., B.A.	Almonte, Ont.
Munroe, H. E.	St. Elmo, Ont.
Murray, J. S.	St. John, N.B,
Nathan, D.	Montreal.
Nelson, J. S.	City View, Ont.
Nelson, W. E.	Montreal.
O'Brien, C. W., B.A.	Noel, N.S.
O'Neill, J. M.	Messina, N.Y., U.S.A.
Park, A. W.	Durham, Ont.
Parris, N. D.	Barbadoes, W.I.
Patch, F. S., B.A.	Montreal.
Pavey, C. A.	London, Ont.
Peterson, G. R.	Toy's Hill, Ont.
Puddington, B. A.	St. John, N.B.
Ramsay, W. A.	Westmount, Q.
Rawlings, W. T.	Montreal.
Rehfuss, W. N.	Bridgewater, N.S.
Robertson, W. G.	Montreal.
Scott, W.	Montreal.
Secord, W. H.	Brantford, Ont.
Seifert, F. W.	Quebec City, Q.
Shillington, R. N. W.	Ottawa.
Slack, M. R.	Farnham, Q.
Smith, C. M.	Red Mountain, Q.
Snetsinger, H. W.	Moulinette, Ont.
Steeves, E. O.	Upper Sackville, N.B.
Strong, W. W.	Cambria, Ont.
Sweeney, J. L., B.A.	Dover, N.H., U.S.A.
Taggart, E. A.	Ottawa.
Teitelbaum, T. A.	Montreal.
Thomas, S. B.	Bridgetown, Barbadoes, W.I.
Truax, W.	Farnham, Q.
Turner, G. H., B.A.	Baie Verte, N.B.
White, P. G.	Woodstock, Ont.
White, S. G.	Ottawa.
Willmore, J. G.	London, England.
Wilson, A.	Russell, Ont.
Wilson, C. E.	Napanee, Ont.
Winder, J. B., B.A.	Compton, Q.

THIRD YEAR.

Ames, A. C.	Field, B.C.
Anthony, T. B.	Berwick, N.S.
Anton, D. L. S.	Ireland G.B.
Arnold, D. R., B.A.	St. John, N.B.
Baillie, S. A., B.A.	Troy, N.Y., U.S.A.
Bishop, L. C.	Marbleton, Q.
Blair, A. K.	Chicoutimi, Q.

Name.	*Residence.*
Blair, H. G. F.	Ashton, Ont.
Boire, W. E.	Manchester, N.H., U.S.A.
Boulter, J. H.	Picton, Ont.
Byers, J. R.	Montreal.
Campbell, A.	Souris, P.E.I.
Campbell, J. A. E., B.A.	Westmount, Q.
Cantlie, F. P. L.	Montreal.
Carnochan, W. L. C.	Montreal.
Carter, W. LeM., B.A.	Quebec, Q.
Christie, F. J.	Martintown, Ont.
Codrington, R. F.	Montreal.
Colby, J. C., B.A.	Stanstead, Q.
Coleman, C. E.	Chatham, N.B.
Cox, R. B.	Collinsville, Conn., U.S.A.
Cram, W. J.	Carleton Place, Ont.
Cullen, W. H.	Montreal.
Curren, L. M.	St. John, N.B.
Dixon, J. D.	Montreal.
Dixon, W. F.	Montreal.
Donovan, J. B.	Lewiston, Maine, U.S.A.
Dorion, W. A.	Waterloo, Q.
Douglas, F. C.	Montreal.
Dowson, C. K.	Montreal.
Eastman, E. B.	Portsmouth, N.H., U.S.A.
Eitel, A. J., M.D.	Chaska, Minn., U.S.A.
Evans, S.	Ottawa.
Ferguson, W. H.	St. Thomas, Ont.
Folkins, H. G.	Milltsream, N.B.
Forster, J. F. C.	Dorchester, N.B.
Gardiner, R. J.	Smith's Falls, Ont.
Gardner, W. A., B.A.	Huntingdon, Q.
Grant, W. W.	Montreal.
Green, F. W.	Pictou, N.S.
Halliday, J. Le P.	Sawyerville, Q.
Harris, L. C.	Moncton, N.B.
Hart, F. W., B.A.	Sackville, N.B.
Henry, C. M.	Palmer, S. Dakota, U.S.A.
Hollingsworth, J. E.	Meekling, S. Dakota, U.S.A.
Hopkins, C. W.	Aroostook Junc., N.B.
Hyatt, E. A., B.Sc.	Dickinson's Centre, N.Y.
Igse, O. A.	Tarrytown, N.Y.
Irwin, F.	Shelburne, N.S.
Johnson, G. A., B.A.	Annapolis, N.S.
Johnson, J. A., B.A.	Lachine, Q.
Jones, N. C., B.A.	Gananoque, Ont.
Leney, J. M., B.A.	Montreal.
Lidstone, A. E.	Richmond West, Ont.
Lomas, A. J.	Montreal.
Lynch, J. B.	Fredericton, N.B.
Macdonald, A. A.	St. Andrews, P.E.I.
Mackinnon, G. E. L.	Alexandria, Ont.
MacLaren, A. H., B.A.	Huntingdon, Q.
MacNaughton, J. A.	Salsbury, N.B.
McDonald, P. A., B.A.	Dundee Centre, Q.
McGibbon, D.	Arkona, Ont.
McGibbon, S.	Arkona, Ont.
McGrath, R. H.	Dorchester, N.B.
McKee W. E.	Coaticooke, Q.
McKenzie, J. B., B.A.	Campbellton, N.B.
McNeill, J. F.	Kensington, P.E.I.
Manchester, J. W.	St. John, N.B.

Name.	*Residence.*
Martin, H. E.	Chatham, Ont.
Mason, E. G.	Westmount, Q.
Mason, F. C.	Plattsburg, N.Y., U.S.A.
Mason, L. D., B.A.	Montreal.
Menzes, J. E.	New Bedford, Mass.
Moffatt, G.	Inkerman, Ont.
Morrison, J. F.	Copleston, Ont.
Morse, W. R., B.A.	Lawrencetown, N.S.,
Mothersill, G. S.	Ottawa.
Ness, W.	Howick, Q.
Netten, P. E.	St. John's, Nfld.
Palmer, G. H.	Dorchester, N.B.
Paterson, R. C., B.A.	Montreal.
Pavey, H. L.	Lond n, Ont.
Peters, O. R.	Gagetown, N.B.
Pickard, L. N.	Charlottetown, P.E.I.
Pilot, F. W. I	St. John's, Nfld.
Pratt, C. M.	St. John, N.B.
Ritchie, C. F.	Montreal.
Roberts, A. B.	Lanark, Ont.
Saunders, W. E.	Woodstock, N B.
Scott, W.	Montreal.
Scriver, E. F.	Hamilton, Ont.
Ship, M. L., B.A.	Montreal.
Smith, T. W.	Hawkesbury, Ont.
Stockwell, H. K.	Danville, Q.
Stowell, F. E.	Worcester, Mass., U.S.A.
Tanner, C. A. H.	Windsor Mills, Q.
Thomas, J. W., B.A.	Montreal.
Tolmie, J. A.	Moose Creek, Ont.
Townsley, R. H.	Westmount, Q.
Tracy, E. A., B.A.	Lancaster, N.H., U.S.A.
Van Wart, R. McL., B.A.	Fredericton, N.B.
Walker, H., Jr.	New York, U.S.A.
Warren, J. G.	Montreal.
Williams, R. G.	Meaford, Ont.

FOURTH YEAR.

Bayfield, T. F.	Charlottetown, P.E.I.
Beatty, H. W.	Sarnia, Ont.
Belanger, E. R.	Ottawa.
Blake, J. J.	Charlottetown, P.E.I.
Browne, J. G., B.A.	Montreal.
Bruce, Jas., B.A.	Moncton, N B.
Butler, P. E., B.A.	Milltown, N.B.
Callbeck, A. DeB.	Tryon, P.E.I.
Campbell, R. P., B.A.	Montreal.
Carlyle, D. A.	Morewood, Ont.
Cartwright, C.	Kingston, Ont.
Coates, H. W.	Bass River, N.B.
Collison, H. McN.	Dixon's Corners, Ont.
Collison, J.	Dixon's Corners, Ont.
Crang, F. W.	Toronto.
Currie, W. D.	Halifax, N S.
Dalton, C. H.	Tignish, P.E.I.
Duncan, J. W.	Montreal.
Egan, W. J.	Sydney Mines, N.S.
Ellis, R. L.	Youghall, N.B.
Featherston, H. C.	Hamilton, Ont.
Fleming, J. E.	Rustico, P.E.I.

Name.	*Residence.*
Fuller, A. T., B.A.	Truro, N.S.
Gardner, R. L., B.A.	Brockville, Ont.
George, J. D.	Redwood, N.Y., U.S.A.
Gibson, E. J.	Campbellford, Ont.
Goodall, J. R., B.A.	Ottawa.
Harley, R. J. O.	Dublin, Ireland.
Harvie, S. K., B.A.	Newport, N.S.
Hope, J. T.	Glen Robertson, Ont.
Howard, A. C. P., B.A.	Montreal.
Hughes, R. E.	Ottawa.
Hunter, E. N. McL.	Merrimac, Mass., U.S.A.
Jackson, G. F.	Brockville, Ont.
Johnson, R. DeL., B.A.	Montreal.
Johnston, A.	Leeds, Q.
Johnston, J. L.	Martintown, Ont.
Jones, J. H.	Brockville, Ont.
Jones, Sydney, B.A.	Cleveland, Ohio, U.S.A.
Kendall, A. L.	Vancouver, B.C.
Ker, R. H., B.A.	Montreal.
Lawlor, F. E.	Dartmouth, N.S.
Learmonth, G. E.	Montreal.
Leggett, T. H.	Ottawa.
Little, H. M., B.A.	London, Ont.
Lunney, T. H.	St. John, N.B.
MacCarthy, F. H.	Ottawa.
MacKay, D. S.	Reserve Mines, N.S.
MacKay, M., B.A.	Montreal.
MacKenzie, S. D.	Sarnia, Ont.
MacKinnon, J. W.	Charlottetown, P.E.I.
MacNeill, J. W.	Kensington, P.E.I.
Macpherson, C.	St. John's, Nfld.
McDonald, C. A.	Milltown, N.B.
McDonald, F. E.	Qu'Appelle, N.W.T.
Martin, E. A.	Kemptville, Ont.
May, L. W.	Ottawa.
Meighen, W. A.	Perth, Ont.
Miller, G. H. S.	Alexandria, Ont.
Miller, S.	South Durham, Q.
Moore, J. C., D.V.S.	St. Chrysostome, Q.
Morgan, A. D.	Nanaimo, B.C.
Moses, H. C.	Caledonia, Ont.
Mullaly, E. J.	Souris, P.E.I.
Newcombe, W. E.	Vancouver, B.C.
Niven, J. K.	London, Ont.
O'Sullivan, M. T.	Glace Bay, C.B.
Paterson, A., B.A.	Montreal.
Penner, E., B.A.	Gretna, Man.
Pittis, H.	Plainfield, N.Y.
Redon, L. H., B.A.	Victoria, B.C.
Richards, B. A.	Yarmouth, N.S.
Robb, E. W. A.	Oxford, N.S.
Roberts, J.	Hamilton, Ont.
Robertson, C. G.	Hawkesbury, Ont.
Robertson, L. F., B.A.	Stratford, Ont.
Robertson, R. D.	St. John, N.B.
Robidoux, E. L., B.A.	Shediac, N.B.
Rogers, H. B.	Peterboro, Ont.
Russel, C. K., B.A.	Montreal.
Russell, E. M., B.A.	Springfield, Mass., U.S.A.
Rutherford, C. A.	Waddington, N.Y.
Ryan, W. T., B.A.	Fredericton, N.B.

Name.	*Residence.*
Sanders, C. W.	Kemptville, Ont.
Shearer, C.	Montreal.
Shearer, R. L.	Kelso P.O., Q.
Simpson, E. G. W.	Lennoxville, Q.
Simpson, S.	Bay View, P.E.I.
Snyder, A. E. W.	Coaticooke, Q.
Stentaford, G. L.	Heart's Content, Nfld.
Stevenson, J., B.A.	Montreal.
Stewart, C. A.	Dunvegan, Ont.
Stewart, C. J.	Russell, Ont.
Symmes, C. R.	Aylmer, Q.
Taylor, D. A.	Havelock, N.B.
Taylor, W. L.	Waterloo, Q.
Ward, J. A.	Lewiston, Maine, U.S.A.
White, E. H., B.A.	Montreal.
Wiggin, W. I.	Lowell, Mass, U.S.A.
Wiley, B. E.	Fredericton, N.B.
Wilkins, F. F.	Montreal.
Williams, W.	Remsen, N.Y., U.S.A.
Wilmot, Le B. B.	Oromoto, N.B.
Wilson, J. J.	Montreal.
Winter, D. E.	Montreal.
Wyman, H. B., B.A.	Chute à Blondeau, Ont.

Faculty of Arts.

FIRST YEAR.

Name.	*School.*	*Residence.*
Archibald, John G.,	Montreal High School,	Montreal.
Bell, Herbert,	Prince of Wales College,	Augustine Cove, P.E.I.
Brown, Wm. G.,	Montreal High School,	Montreal.
Campbell, D. Grant,	Montreal High School,	Montreal.
Chandler, Arthur B.,	Montreal High School,	Montreal.
Cousineau, Victor M.,	Ontario Public School,	Cutler, Ont.
‡Cross, C. Ernest,		Melbourne, Q.
‡Dickenson, John D.,		Hazel Hill, N.S.
Dunham, Walter P.,	St. John, N.B., P. S.,	St. John, N.B.
French, Arthur,	St. John's School,	Montreal.
*Gaunt, Reg. T.,	Ward-Whates School,	Montreal.
*Gray, Edwin H.,	Private Study,	Montreal West, Q.
‡Greenshields, J. Gordon,	Bishop's Coll. Sch.,	Lennoxville, Q.
Gurd, Fraser R.,	Montreal High School,	Montreal.
†Halpenny, T. Anson,	Sydenham High Sch.,	Bearbrook, Ont.
Harvie, Robt.,	Westmount Acad.,	Westmount, Q.
†Holden, Herbert L. L.,	Private Tuition,	Victoria, B.C.
†Hutchinson, James J.,	Elora H. S.,	Craig's Holme, Ont.
‡Joughins, James L.,		Moncton, N.B.
Kydd, Geo.,	Montreal High School,	Montreal.
Laing, Allan P.,	Halifax Academy,	Halifax, N.S.
Lathe, Frank E.,	Huntingdon Academy,	Lacolle, Q.
LeMesurier, George S.,	Montreal High School,	Montreal.
Locke, Ernest E.,	Westmount Acad.,	Westmount, Q.
Logan, David C.,	Montreal High School,	Montreal.
‡Lomer, Theodore A.,	Montreal High School,	Montreal.
Macaulay, Frederick R.,	Montreal High School,	Montreal.
MacFarlane, Charles Mac.K.,	Huntingdon Academy,	Aubrey, Q.

‡ Conditioned. * Double Course.

Name.	*School.*	*Residence.*
McCallum, Orick B.,	Montreal High School,	Montreal.
McDonald, George C.,	Montreal High School,	Montreal.
McGougan, Ed.	Glencoe High School,	Glencoe, Ont.
McKenzie, Angus D. M.,	Prince of Wales Col.,	Hartsville, P.E.I.
†McMurtry, Rennie O.,	Montreal High School,	Montreal.
‡McPherson, Donald A.,	Grammar School,	Montreal.
Marshall, Wm. W.,	Montreal High School,	Montreal.
Mingie, Geo. W.,	Montreal H. S.,	Point St. Charles.
Molson, Walter,	Montreal High School,	Montreal.
‡Monk, Frederick A.,	Ward-Whates School,	Montreal.
Papineau, Talbot M.,	Montreal High School,	Montreal.
‡Patrick, Charles L.,	Montreal H. S.,	Westmount, Q.
Rose, Herbert J.,	Ottawa Collegiate Inst.,	Ottawa.
Ross, Colin E.,	Westmount Acad.,	Westmount, Q.
†Ross, Walter,	High Sch., Orillia,	Uptengrove, Ont.
Rutherford, Wallace,	Huntingdon Acad.,	Trout River, Q.
Scriven, Henry A.,	Dioc. Theolog. Coll.,	Montreal.
Shanks, George,	Huntingdon Academy,	Howick, Q.
Sheldon, Ernest W.,	Barrie Coll. Inst.,	Westmount, Q.
Stewart, J. Ure.,	Goderich Coll. Inst.,	Goderich, Ont.
‡Thomson, George D.,	Montreal High School,	Montreal.
‡Walker, H. Earle,	Abingdon School,	Westmount, Q.
Wickware, Francis G.,	Smith's Falls High School,	Easton's Corners, Ont.
Wright, Robert P.,	Montreal High School,	Montreal.
‡Young, Charles A.,	Ottawa Coll. Inst.	Ottawa.

SECOND YEAR.

†Baker, Chris. W.	Carlingford, Ont.
†Bartlett, W.	Brigus, Nfld.
Bovey, Francis H. W.	Montreal.
Cameron, Dakers	Montreal.
†Cleland, Albert S.	Ormstown, Q.
Couture, Gui. C.	Montreal.
(4) †Cragg, C. E.	Brighton, Ont.
Davidson, Macfarlane B.	Ottawa.
Davies, Thos. A.	Charlottetown, P.E.I.
†Demole, John	Montreal.
Dunlop, Alan C.	Montreal.
Dutaud, Gustave	St. Blaise, Q.
Fee, James E.	Farnham, Q.
†Fisher, Lawrence H.	Trenholme, Ont.
*Fripp, Geo. D.	Ottawa.
Gnaedinger, Ernest G.	Montreal.
Hanington, Jno. W. B.	Victoria, B.C.
*Harris, Alan Dale	Ottawa.
Healy, Walter J.	Richmond, Q.
†Hoffman, Albert C.	Haleys, Ont.
Holman, Wm. L.	Summerside, P.E.I.
†Howard, Fred. H.	Blackstock, Ont.
Johnson, Walter S.	Montreal.
Joseph A. Pinto	Quebec, Q.
†Krüger, Samuel H.	Elmwood, Ont.
Lomer, Gerhard R.	Montreal.
MacKay, Eric B.	Montreal.
†MacKenzie, J. D.	Inverness, Q.
†McCutcheon, O. F.	Leed's Village, Q.

† Partial. ‡ Conditioned. * Double Course.

Name.	*Residence.*
McDiarmid, James S.	Ingersoll, Ont.
†McDougall, Errol W. M.	Mattawa, Ont.
†McEachran, R.	Glen Arm, Ont.
McKellar, Hugh	Martintown, Ont.
McLeish, John	Montreal.
McMorran, T. S.	Ottawa.
May, William H.	Forresters Falls, Ont.
†Mitchell, George S.	Linden, N.S.
Mowatt, Edward E.	Montreal.
Parkins, Edgar R.	Montreal.
Pattison, Albert M.	Clarenceville, Q.
Pownall, Edward W.	Montreal.
†Rondeau, Albert G.	Hull, Q.
Seaman, Jno. C.	Otter Lake, Q.
†Sharpe, James H.	Clydesdale, Ont.
Simister, Warren	Montreal.
Sutherland, Forbes D.	Montreal.
Troop, G. Wm. H.	Montreal.
†Whiteside, R. H.	Metcalfe, Ont.
†Woodside, James H.	St. Sylvester W., Q.

THIRD YEAR.

Adams, Chauncey A.	Coaticook, Q.
Ascah, Robt. G.	Peninsula, Gaspe, Q.
†Barnes, W. M.	Montreal.
Blagrave, Robt. C.	Rawdon, Q.
Carson, Hermon A.	Nicolet Falls, Q.
†Chaucey, S. A.	St. John's, Nfld.
*Cole, Geo. E.	Westmount, Q.
Crothers, Harold R.	Venice, Q.
Crowell, Sam. G.	Yarmouth, N.S.
*Harris, Spencer L. D.	Ottawa.
Ireland, F. Chas.	Montreal.
Irving, George	Vernon Bridge, P.E.I.
Jack, Milton	Chateauguay Basin, Q.
Lincoln, J. W.	Montreal.
*McDonald, Jno. A.	Valleyfield, Q.
(4) †McKelvey, Irving A.	Stratford, Ont.
(4) †Morrow, Jno. D.	Toronto.
Munn, W. Clement	Quebec.
*Murphy, Herbert H.	Antrim, Ont.
Ogilvie, Gavin Lang	Montreal.
Parker, Dan. T.	Cambria, Q.
Plant, Verner L.	Montreal.
*Pruyn, Wm. G.	Napanee, Ont.
Reid, Allan S.	Lemesurier, Q.
†Simpson, J. C.	Montreal.
†Steen, Rev. F. J.	Montreal.
(4) †Steeves, H. B.	Shediac, N.B.
†Stillman, H. W.	Campbellford, Ont.
†Sutcliffe, J. F.	Camlachie, Ont.
Walker, Jno. J.	Napanee, Ont.

FOURTH YEAR.

Barrington, Fred. H.	Waterloo, Q.
*Boulter, J. Henry	Demorestville, Ont.
†Boyd, Alfred L.	Metcalfe, Ont.

† Partial. * Double Course.

Name.	*Residence.*
Brodie, Hugh H.	Westmount, Q.
Brown, Albert V.	Montreal.
Charters, Herbert	Montreal.
Chipman, Warwick F.	Montreal.
Copeman, Joseph Hodge	Quebec.
Cotton, Wm. U.	Sweetsburg, Q.
(2) †Cragg, C. E.	Brighton, Ont.
†Crossley, T. L.	Westmount, Q.
Dickson, Norval	Allan's Corners, Q.
Fuller, George D.	Adamsville, Q.
†Gratton, L. C.	Ithaca, N.Y.
Harper, Robert J.	Montreal.
Hickson, Robert N.	Montreal.
*Horsfall, Frank L.	Montreal.
Teakins, Chas. E.	Waterloo, Q.
Lindsay, J. Edwin	Rawdon, Q.
Lochead, Arthur W.	North Gower, O.
McDonald, John, Jr.	Montreal.
*McEwen, John R.	Dewittville, Q.
(3) †McKelvey, J. A.	Stratford, Ont.
McLeod, Angus B.	Springton, P.E.I.
McMurtry, Gordon O.	Montreal.
McMurtry, Shirley O.	Montreal.
McNaughton, Wm. G.	Huntingdon, Q.
*McPherson, Thomas	Stratford, Ont.
*Mitchell, Isaiah Edward	Sherbrooke, Q.
Mitchell, Sydney C.	Montreal.
Moffatt, Charles F.	Montreal.
Molson, Percival	Montreal.
(3) †Morrow, John D.	Toronto.
Mount, Hector P.	Montreal.
Mowatt, Joseph A.	Montreal.
Scott, Geo. W.	Montreal.
Scott, Harry E.	Napanee, Ont.
Scott, Wm. J.	Montreal.
Scrimger, Francis A. C.	Montreal.
(3) †Steeves, H. B.	Shediac, N.B.
Stephens, Laurence de K.	Montreal.
*Strong, Norman W.	Cambria, Q.
Tees, Fred. J.	Montreal.
†Turkington, Ed.	Marlbank, Ont.
Viner, Norman	Montreal.
White, D. Roderick	Huntingdon, Q.
Williams, Hy. S.	Knowlton, Q.

GRADUATE STUDENTS.

Cochrane, D.	Montreal.
Cooke, Hereward L.	Montreal.
DeWitt, Jacob	Montreal.
Hamilton, Daniel S.	Montreal.
Millar, W. Kinloch	Pembroke, Ont.
Newson, Wm. V.	Charlottetown, P.E.I.
Woodley, Ed. C.	Montreal.

† Partial. * Double Course. The figure (1), (2), or (3), prefixed to a name indicates that the Student takes a class in the corresponding year as well as in that where the name is found.

Royal Victoria College.

FIRST YEAR.

Name.	*School.*	*Residence.*
†**Baird**, I. Lena,		Andover, N.B.
†Barclay, Marian R.,		Montreal.
†Bayne, Olive P.,		**Montreal.**
Bell, Ruth,	Westmount Acad.,	Westmount, Q.
†Bonin, Sybil,		Montreal.
Bouchard, Myra McL.,	Trafalgar Institute,	Montreal.
‡Brown, Everetta J.,	McGill Normal School,	Montreal.
†Browne, Ada F. G.,		Montreal.
†Carr, Flossie S.,		Montreal.
†Clay, Constance,		**Montreal.**
†Cooke, Violet B.,		Montreal.
Cox, Vera,	Collinsville High School,	Collinsville, Conn., U.S.A.
‡Craig, Bessie,	Montreal Girls' H. S.,	Montreal.
Draper, Mandolin A.,	**Hamilton Coll. Inst.,**	**Montreal.**
†Dunlop, Euphemia B.,		Montreal.
Fenwick, Gladys M.,	Montreal Girls' H. S.,	Montreal.
Freeze, Helen L.,	**St. John H. S.,**	**St. John West, N.B.**
Gardner, H. Ivy L.,	Misses Symmers & Smith's School,	**Montreal.**
†Gillean, Evelyn M. ,		**Montreal.**
†**Greenough**, Margaret,		**Portneuf, Q.**
Griffin, Grace L.,	Parkdale Coll. Inst.,	Toronto.
†Hall, Eva,		**L'Orignal, Ont.**
†Harrington, Ruth M.,		Montreal.
Hart, E. Muriel,	Misses Symmers & Smith's School,	St. Lambert, Q.
Heuser, Edith,	**Montreal Girls' H. S.,**	**Montreal.**
Jordan, Mabel G.,	Montreal Girls' H. S.,	Montreal.
†Kerr-Kaye, Georgina M. R.,		Montreal.
Kimber, Victoria C.,	**Montreal Girls' H. S.,**	**Montreal.**
†Macfarlane, Grace M.,		Westmount, Q.
MacKenzie, Catherine I.,	Montreal Girls' H. S.,	Montreal.
MacLeod, Annie L.,	Sydney Academy,	Glace Bay, C.B.
McCally, Mary K.,	St. Thomas Coll. Inst,	St.Thomas, Ont.
McCoy, Isabel,	Montreal Girls' H. S.,	Montreal.
†Mitchell, Dora S.,		Montreal.
(2)†Nairn, Caroline,		Toronto.
(2)†Parkins, Gladys,		Montreal.
†**Prendergast**, Florence M.,		Montreal.
Robertson, Ethel C.,	**Westmount Acad.,**	**Westmount, Q.**
Simpson, Edith P.,	McGill Normal School,	Montreal.
(2) †Smaill, Gertrude M.,		Montreal.
(2)†**Smith**, Ella G.,		Montreal.
†**Stetham**, Violet V.,		Montreal.
Stewart, Lillian J.,	Harmon Home & Day S.,	Ottawa.
Webster, Amy W.,	Westmount Acad.,	Westmount, Q.
White, Alison G.,	**Woodstock Coll. Inst.**	**Toronto.**
†Willett, Lulu M. T.,		Montreal.
Wilson, Alice M.,	Montreal Girls' H. S.,	Montreal.

SECOND YEAR.

Augus, Jean M.	Westmount, Q.
†Bacon, C. E.	Montreal.
†Baynes, Hilda	Montreal.

† Partial. ‡ **Conditioned.** The figure (1), (2), or (3), prefixed to a name indicates that the Student takes a class in the corresponding year as well as in that where the name is found.

Name.	*Residence.*
Belyea, Marion E.	St. John, N.B.
(3) †Cox, Kath. A.	Montreal.
East, Edith M.	Maisonneuve, Q.
†Ellis, F. L.	Montreal.
†Ellis, Mabel T.	Montreal.
Gass, Helen	Montreal, W.
Hadrill, Margaret F.	Montreal.
†Jacques, W. R.	Westmount, Q.
(3) †Lamb, Mary L.	St. Andrews E., Q.
†Lindsay, K. A.	
Lundie, Helen	Montreal.
Lunny, Rosemary	Smith's Falls, Ont.
(3) †McBratney, J. M.	Montreal.
McLeod, Euphemia L.	Montreal.
†Mathewson, Amy	Montreal.
(1) †Nairn, Caroline	Toronto.
Parkin, Maude E.	Toronto.
(1) †Parkins, G. W.	Montreal.
†Rodger, E. W.	Westmount, Q.
(1) †Smaill, G. M.	Montreal.
(1) †Smith, Ella G.	Montreal.
Wales, Grace Julia	Robinson, Q.
Wisdom, Katherine F.	St. John, N.B.
†Woodley, Florence E.	Westmount, Q.

THIRD YEAR.

Bickerdike, May C.	Lachine, Q.
†Britton, M.	Montreal.
†Budden, E. M.	Montreal.
†Budden, H. A.	Montreal.
†Budden, J. M.	Montreal.
†Butler, S.	Montreal.
Clogg, Vivian E.	Westmount, Q.
(2) †Cox, Kath. A.	Montreal.
Day, Daisy W.	Montreal Annex, Q.
Dixon, Jennie D.	Montreal.
Greenleese, Mary S.	Montreal.
†Harrington, Clare M.	Montreal.
Hitchcock, Caroline L.	Brockville, Ont.
Irving, Elizabeth	Vernon River Bridge, P.E.I.
†James, A. D.	Montreal.
(2) †Lamb, M. L.	St. Andrews E., Q.
(2) †McBratney, J. M.	Montreal.
McLachlan, Jessie W.	Guelph, Ont.
Munn, Emma M.	Montreal.
Nolan, Annie W.	Westmount, Q.
Noyes, Emily M.	Cowansville, Q.
†Porteous, Phyllis E. F.	Montreal.
(4) †Riebe, Elvina B.	Chicago, Ill.
Smith, Miriam G.	Morrisburg, Ont.
†Sutherland, A.	Montreal.
Warriner, J. Eva	Montreal.

FOURTH YEAR.

Bennett, C. Winifred	Montreal.
Flint, Mary F.	Stanstead, Q.
†Gould, E.	Montreal.
Huxtable, Mary Gertrude	Montreal.

†Partial. The figure (1), (2), or (3), prefixed to a name indicates that the Student takes a class in the corresponding year as well as in that where the name is found.

Name.	*Residence.*
Page, Harriet A.	North Troy, Vt.
†Plimsoll, M. M. Gladys	Montreal.
(3) †Riebe, Elvina B.	Chicago, Ill.
Smith, Esther M.	Quebec, Q.

* Double Course. † Partial. ‡ Conditioned.

GRADUATE STUDENTS.

Brittain, Isabel E. (B.A.)	Montreal.
Craig, Margaret (B.A.)	Westmount, Q.
Hammond, Elizabeth A. (M.A.)	Montreal.
Hurst, Ida Ethel (B.A.)	Westmount, Q.
Johnson, Helena (B.A.)	Montreal.
Rorke, Helen (B.A.)	St. Thomas, Ont.
Seifert, Ethel M. (B.A.)	Quebec, Q.
Shaw, S. Louise (B.A.)	Montreal.
Talley, Eleanor (B.A.)	Montreal.
Wallbridge, Mabel H. (B.A.	Mystic, Q.

Faculty of Applied Science.

FIRST YEAR.

‡Atkinson, M. Brodie	Montreal.
‡Baker, C. Stanley	Hampstead, London, Eng.
‡Barclay, Charles H.	St. Paul, Minn., U.S.A.
Batchelder, Charles K.	Newport, Vt., U.S.A.
‡Beaubien, James de G.	Outremont, Q.
Blumenthal, Samuel	Montreal.
†Browne, William H.	
Campbell, Colin St. G.	Aldershot, Ont.
Cardew, John H.	Youngs Point, South Beach, Q.
Carlyle, Ernest J.	Woodstock, Ont.
Chambers, Robert A.	Montreal.
Chaplin, Charles J.	Westmount, Q.
‡Churchill, Cecil	Hantsport, N.S.
†*Cole, G. Edwards	Westmount, Q.
Cole, George H.	Ottawa.
Crichton, Gordon L.	Halifax, N.S.
†Crombie, Henry R.	Montreal.
‡Davis, Patrick	Windsor, Ont.
Dawe, Robert G.	Bay Roberts, Nfld.
Devlin, Cecil G.	Mohawk, Ont.
Drysdale, William F.	Montreal.
†Ferguson, Allan A.	Pictou, N.S.
Fraser, Donald MacI.	Montreal.
†Fraser, Russell L.	New Glasgow, N.S.
(2) †Fraser, Thomas C.	New Glasgow, N.S.
Fullington, Moses A.	Newport, Vt., U.S.A.
†*Gaunt, Reginald T.	Montreal.
†Gillmor, William D.	Westmount, Q.
‡Gilmour, Reginald B.	Montreal.
‡Graham, Wendell S.	New Glasgow, N.S.
Greey, John W. G.	Toronto.
†Hall, Marion E.	Sandon, B.C.
Hamilton, Alfred McL.	Westmount, Q.
Hamilton, Wilfred	Montreal.
(2)†*Harris, Allan D.	Ottawa.
†*Harris, Spencer L. D.	Ottawa.

† Partial. ‡ Conditioned. * Double Course. The figure (1), (2), or (3), prefixed to a name indicates that the Student takes a class in the corresponding year as well as in that where the name is found.

Name.	*Residence.*
Harvey, John B.	Lyndhurst, Ont.
‡Hersey, Herbert S.	Montreal.
Higgins, Benjamin H.	London, Ont.
‡Hodgson, Cassils V.	Montreal.
Hogan, John	Westmount, Q.
Johnson, Frederick M. G.	Montreal.
Kemp, Robert A.	Seaforth, Ont.
Kent, George M.	Truro, N.S.
‡Keyes, Corlis G.	Ottawa.
Lawrence, William D.	Maitland, N.S.
‡LeMaistre, Frederick J.	Westmount, Q.
Lewis, Burwell B.	Baltimore Md., U.S.A.
Lockerby, Robert A.	Montreal.
†Lucas, Harry W.	Lachine, Q.
MacCarthy, Arthur K.	Ottawa.
MacCosham, Edgar	Bryson, Q.
MacLeod, Russell M.	Buffalo, N.Y., U.S.A.
‡Manchester, Clifford S.	Ottawa.
†Marler, Leonard W.	Montreal.
Marrotte, Louis H.	Westmount, Q.
Martin, Edward N.	Haldimand, Ont.
McCloskey, Frederick W.	Boiestown, N.B.
McDougall, Clarence H.	South Maitland, N.S.
McDougall, George K.	Montreal.
McIntyre, Melvil B.	Owen Sound, Ont.
†McMurtry, Gordon O.	Montreal.
†Michaels, Michael A.	Montreal.
†Mitchell, Harold C.	Ottawa.
Mundy, Oswald A.	Hamilton, Ont.
Parlee, Norman W.	Rossland, B.C.
Piche, Ernest A.	Montreal.
‡Pippy, George F.	Springhill, N.S.
†Porter, William J. D. A.	Douglastown, N.B.
†Preston, J. Hal.	Montreal.
Price, Herbert L.	Montmorency, Q.
Robillard, Edmond G. F.	Montreal.
Roffey, Myles H.	Braintree, Essex, Eng.
‡Shaughnessy, William J.	Montreal.
†Sheely, William J.	Montreal.
Sims, Harold H.	Montreal.
Smith, Joseph	La Baie du Fable, Q.
Smith, Ralph E.	Windsor, N.S.
Sullivan, Michael H.	Ottawa.
Sutcliffe, Paul	Poughkeepsie, N.Y., U.S.A.
‡Sutherland, Charles	New Glasgow, N.S.
‡Sutherland, Daniel H.	River John, N.S.
Taylor, Reginald F.	Gananoque, Ont.
Vallières, Henry R.	Three Rivers, Q.
Webster, George B.	Montreal.
Wenger, John A.	Ayton, Ont.
Wilkes, Frederick C. D.	Brantfrord, Ont.
‡Williamson, Alexander J.	Montreal.
Wilson, William D.	Hamilton, Ont.
Wisdom, Stuart A.	Dartmouth, N.S.
Wurtele, John S. H.	Acton Vale, Q.

SECOND YEAR.

Baker, William E.	Montreal.
Beauchamp, Leon	Montreal.
Beck, Alfred E.	Penetanguishne, Ont.

‡ Conditioned. † Partial.

Name.	*Residence.*
Blatch, Harry E.	St. John's, Nfld.
Boright, Sherman H.	Sutton, Q.
Brainerd, Herbert W.	Montreal.
Brecken, Walter R.	Charlottetown, P.E.I.
Brown, **Frederick B.**	Montreal.
‡**Cameron, John A.**	Hamilton, Ont.
Cohen, **Harris**	Montreal.
‡**Cole, G. Percy**	Montreal.
Cooper, Frank W.	London, Ont.
Conklin, **Roscoe N.**	Winnipeg, Man.
†**Cowper, E.**	Longueuil, Q.
Crawford, **Stuart**	Montreal.
(3)‡**Cushing, Gordon C.**	Montreal.
Denne, **Reginald D. L.**	Ottawa.
Egleson, **James E. A.**	Vancouver, B.C.
Foreman, Alvah E.	New Glasgow, N.S.
Fraser, Thomas C.	Quebec, Q.
Gale, George G.	Carleton Place, Ont.
‡**Gillies, George A.**	Dundas, Ont.
Graham, William F.	Winnipeg, Man.
Haffner, **Henry J. A.**	Washington, Ont.
Hall, Oliver	Ottawa.
(1)*Harris, **Alan Dale**	Heart's Content, Nfld.
James, **Bertram**	Ottawa.
Jones, **Harold W.**	Smith's Falls, Ont.
Keith, **Fraser S.**	Vancouver, B.C.
‡**Kendall, George**	Ottawa.
‡**Lambart, Howard F.**	Dorchester, N.B.
‡**Landry, Pierre A.**	Victoria, B.C.
Langley, **Albert G.**	St. George, N.B.
Lawrence, **Hugh R.**	Hamilton, Ont.
Lucas, **Allan S. B.**	Vankleek Hill, Ont.
McCaskill, **Kenneth A.**	Westville, N.S.
‡**McDonald, James F.**	Montreal.
McKay, **Frederick A.**	Westmount, Q.
McKergow, **Charles M.**	Bridgetown, N.S.
‡**Morse, William H.**	Duncans, B.C.
Musgrave, **Robert**	Duncans, B.C.
Musgrave, **William N.**	Chesterville, Ont.
Pearson, **Hartley M.**	Defiance, Ohio, U.S.A.
Peaslie, **Alexander S. L.**	Montreal.
Peck, Warren G.	Gonzales, Victoria, B.C.
Pemberton, **William P. D.**	Rockland, Q.
Ralph, **Claude E.**	Charlottetown, P.E.I.
Richards, **Charles C.**	Montreal.
Roberts, **Arthur R.**	St. John's, Nfld.
Rodger, **Herbert F.**	Embro, Ont.
Ross, **James C.**	Albany, N.Y., U.S.A.
Rowlands, **Charles**	Montreal.
Savage, **George M.**	Quebec, Q.
(3) Sewell, **Alex. L.**	Woodstock, N.B.
‡**Stokes, Chas. W.**	Montreal.
(3)‡**St-Georges, Henri**	Toronto.
Stovel, Joseph H.	Montreal.
Thorpe, **William H.**	Goderich, Ont.
Tilt, Edwin B.	Barbadoes, W.I.
Trimingham, **Charles L.**	Flesherton, Ont.
Ward-Clarence, **R.**	

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† Conditioned. ‡ Partial. The figure (1), (2), or (3), prefixed to a name indicates that the Student takes a class in the corresponding year as well as in that where the name is found.

THIRD YEAR.

Name.	*Residence*
Addie, Thomas H.	Sherbrooke, Q.
Baird, Alexander	Sherbrooke, Q.
Biggar, Howell	Ottawa.
Borden, Henry P.	Kentville, N.S.
Caldwell, Boyd	Lanark, Ont.
Campbell, Charles McK.	Winnipeg, Man.
‡Canning, William F.	St. John's, Nfld.
‡Cape, Ernest K.	Hamilton, Ont.
Corless, Charles V.	New Durham, Ont.
Cou son, John D.	Toronto.
Cowen, Edwin A. A.	Montreal.
(2) Cushing, Gordon C.	Montreal.
DePencier, Henry P.	Vancouver, B.C.
†Draper, Carl H.	Fayville, Mass., U.S.A.
Dunfield, John C. W.	St. John's, Nfld.
‡Dupuis, Albert	Montreal.
Edgar, John H.	Montreal.
Franklin, E. L.	Wolfville, N.S.
Fry, David M.	Bright, Ont.
†Gaskill, James P.	Woonsocket, R.I., U.S.A.
Green, A. H.	St. John, N.B.
Heaman, John A.	London, Ont.
Hicks, Thomas N.	Perth, Ont.
Jackson, Philip T.	Toronto.
Jamieson, George E. S.	Montreal.
Keays, Jas. Alex.	Montreal.
MacKay, Eric	St. John's, Nfld.
Maclaren, Frank H.	Huntingdon, Q.
Maclaren, George McG.	Ottawa.
McBride, Wilbert C.	Inglewood, Ont.
McConkey, Walter R.	Guelph, Ont.
Maxwell, Marshall A.	St. Stephen, N.B.
†Munro, A. J.	Glasgow, Scotland.
Murphy, William E.	Shelburne, N.S.
Newton, Samuel R.	Drummondville, Q.
Peck, Thomas E.	Montreal.
‡Porcheron, Alphonse	Montreal.
†Roberts, John R.	Hamilton, Ont.
Robertson, John F.	Charlottetown, P.E.I.
Scott, Harry E.	Napanee, Ont.
Sewell, Alexander L.	Quebec, Q.
Smith, Gerald M.	St. Johns, Q.
Smith, J. Macdonald	New Whatcom, Wash., U.S.A.
Sterns, Frank E.	Morell, P.E.I.
(2)†St. Georges, Henri	Montreal.

FOURTH YEAR.

Anderson, Thomas V.	Ottawa.
Archer, Augustus R.	New York, U.S.A.
Blanchard, Arthur C. D.	Windsor, N.S.
Boyd, Hugh H.	Montreal.
Burson, Herbert A.	St. Catharines, Ont.
Burwell, Ernest V.	London, Ont.
‡Cameron, Hugh D.	Montreal.
Clement, Sheldon P.	Kingsville, Ont.
†Connolly, Frank	Montreal.
Coussirat, Henri A.	Montreal.

‡ Conditioned. † Partial. The figure (1), (2), or (3), prefixed to a name indicates that the Student takes a class in the corresponding year as well as in that where the name is found.

Name.	*Residence.*
DeBlois, William H.	Halifax, N.S.
Donaldson, Hugh W.	Hamilton, Ont.
Edwards, W. Muir	Ottawa.
Flint, William G.	Montreal.
Forman, Andrew S.	Montreal.
Fraser, Donald C.	New Glasgow, N.S.
Frechette, Howells	Ottawa.
Gagnon, E. Ernest	Montreal.
Galbraith, Malcolm T.	Montreal.
Glassco, Archie P. S.	Hamilton, Ont.
Hampson, E. Greville	Montreal.
Higman, Ormond, Jr.	Ottawa.
Howard, Rupert F.	Lachine, Q.
Labatt, John S.	London, Ont.
†Labelle, Louis	Montreal.
†Lacroix, Raoul	Montreal.
†Lemieux, Ludger	Montreal.
†Levesque, Michael	Montreal.
Lloyd, Herbert M.	New Westminster, B.C.
Lowden, Warden K.	Montreal.
†Macdonald, Robt. H.	Westmount, Q.
McKenzie, Bertram F.	London, Ont.
McLaren, John H.	Oshawa, Ont.
Millar, James L.	Pembroke, Ont.
†Moore, George Allan	Montreal.
Ogilvie, Paul	Ottawa.
Palmer, Ernest E.	Toronto.
Paterson, Charles S.	Montreal.
Patterson, Frank E.	Almonte, Ont.
Porteous, Geoffrey	Montreal.
Pyke, Gordon McT.	Montreal.
Riddell, John A.	Montreal.
Ritchie, Joseph N.	Halifax, N.S.
Schwitzer, Thomas H.	Ottawa.
Scott, Henry M.	Montreal.
†Sharp, Andrew	Montreal.
Sise, Paul F.	Montreal.
†Stone, Howard C.	Montreal.
Taylor, Charles W.	Richwood, Ont.
Tupper, Charles	Vancouver, B.C.
Ward, Percy W.	Lachine, Q.
White, Gerald V.	Pembroke, Ont.
†Wilson, Charles E. A.	Vancouver, B.C.
Wilson, Reginald C.	Cumberland, Ont.
†Woodroofe, Arnott	Vancouver, B.C.

GRADUATE STUDENTS.

Allen, S. (B.Sc.)	
Butler, Percy (B.A.Sc.)	Montreal.
Cornwall, Clement A. K. (B.Sc.)	Ashcroft, B.C.
Duncan, Geo. R. (B.Sc.)	Montreal.
Glassco, Jack G. (B.Sc.)	Hamilton, Ont.
Grier, Arthur G. (B.Sc.)	Ottawa.
Neville, Thomas P. J. (B.Sc.)	Halifax, N.S.
Osborne, James E. Kerr (B.Sc.)	Toronto.
Smith, George B. (B.Sc.)	Stratford, Ont.
Walker, Frank W. (B.Sc.)	Montreal.
Wenger, E. I. (B.Sc.)	Ayton, Ont.

† Partial.

Comparative Medicine.

FIRST YEAR.

J. E. Littlehales . . . . . Saltcoats, Assa.
H. Gaw . . . . . Clinton, Mass.
Jos. Coffey . . . . . New York, N.Y.
G. Halcro . . . . . Hudson, Q.

SECOND YEAR.

Arthur S. Clark . . . . . Hubbardston, Mass.
W. Reid Blair . . . . . Chicopee, Mass.
W. H. Spear . . . . . Burlington, Vt.
Seymour Hadwen . . . . . Duncan. B.C.
L. Doyle . . . . . Montreal.
A. R. Douglas . . . . . Montreal.
A. D. Harrington . . . . . Guysboro, N.S.

THIRD YEAR.

O. T. Amyrauld . . . . . Sweetsburg, Q.
J. T. Rork . . . . . Roxbury, Mass.
Walter Manchester . . . . . Sussex, N.B.
D. Tamblyn . . . . . Berkshire, Eng.
G. A. Kennedy . . . . . Hemmingford, Q.
A. A. Etienne . . . . . Montreal.

Colleges Associated in Arts.

STANSTEAD WESLEYAN COLLEGE.

Undergraduates.

FIRST YEAR.

Hovey, Carrie H.
Hitchcock, Mary.
Smith, Allen E.
Findlay, Delmer C.

SECOND YEAR.

Bridgette, Sam. J.
Lockhart, Arthur R B.
Cole, Kate E.

VANCOUVER COLLEGE.

Undergraduates.

FIRST YEAR.

Bajus, William P.
Burpee, Leila A.
Carter, Hilda M.
DeBeck, Edwin K.
Laursen, Lili J. U.
McGeer, L. Fitz-Lacy.
Robinson, Leonore E.
Rubinowitz, Israel.

Partial.

Henderson, Isobel.
Leek, Edith L.
McConaghy, James A.
Roger, Emma L.
Snider, Bertha M.

1900-01

Summary.

Students in Law, McGill College			60
Students in Medicine, McGill College			464
Students in Arts, McGill College :—			
Men —	Graduates	7	
	Undergraduates	128	
	Conditioned	11	
	Partial	36	
Women—	Graduates	10	
	Undergraduates	51	
	Conditioned	2	
	Partial	47	
			292
Students in Arts, Vancouver College			13
Students in Arts, Stanstead College			7
Students in Applied Science, McGill College:—			
	Graduates	11	
	Undergraduates	195	
	Conditioned	18	
	Partial	34	
			258
Students in Veterinary Science			17
			1111
McGill Normal School, Teachers-in-training			123
			1234
Deduct, repeated in different lists			12
Total			1222

University Societies.

Graduates' Society of McGill University.

INCORPORATED 24TH JULY, 1880.

President—Malcolm C. Baker, D.V.S.

Vice-Presidents—Charles W. Wilson, M.D.; Miss Helen R. Y. Reid, B.A.; Archibald MacArthur, B.A.

Secretary—J. Claud Hickson, B.A., B.C.L.

Treasurer—Francis Topp, B.A., B.C.L.

Resident Councillors—A. Rives Hall, B.A., B.C.L.; Frank D. Adams, M.A., Ph.D.; Homer M. Jaquays, M.A.Sc.; E. Fabre Surveyer, B.A., B.C.L.; Howard M. Church, M.D.; W. F. Angus, B.A.Sc.

Non-Resident Councillors—The Presidents of the British Columbia Graduates' Society, the New England Graduates' Society, the New York Graduates' Society, the Maritime Graduates' Society, and the Hon. W. W. Lynch, D.C.L., Knowlton, Que.

McGill Applied Science Society.

Hon. President—Dr. H. T. Bovey.

Advisory Committee—Prof. F. D. Adams, J. M. McCarthy, M. L. Hersey, A. L. Mudge, R. F. Ogilvy.

Hon. Sec.-Treasurer—J. G. G. Kerry, Engineering Building, McGill University.

President—

Vice-Presidents—C. M. Campbell, Mining Engineering, '02; H. P. Borden, Civil Engineering, '02; T. W. Hicks, Mechanical Engineering, '02.

Secretary—J. G. Ross, '03.

Treasurer—O. Hall, '03.

2nd Year Representatives—E. J. Carlyle, '04; G. O. McMurtry, '04.

Editorial Board—C. Rowlands, '03; J. E. A. Egleson, '03; F. E. Sterns, '02; H. Bigger, '02.

Alumnæ Society of McGill University.

President—S. E. Cameron, M.A.
Vice-Presidents—Carrie M. Derick, M.A.; Eleanor Tatley, B.A.; Kathleen Finley, B.A.; F. Shearwood, B.A.
Treasurer—Isabel Brittain, B.A.
Rec. Secretary—Ethel Hurst, B.A.
Assist. Rec. Secretary—Elizabeth A. Hammond, M.A.
Cor. Secretary—A. L. Shaw, B.A.
Assist. Cor. Secretary—Louise Smith, B.A.

Ottawa Valley Graduates' Society of McGill University.

ORGANIZED 1890.

Hon. President—The Right Hon. Sir Wilfrid Laurier, P.C., K.C.M.G., LL.D.
President—P. D. Ross, B.A.Sc.
Vice-Presidents—G. H. Groves, M.D., C.M.; H. M. Ami, LL.D.; G. C. Wright, B.A., B.C.L.
Secretary—D. B. Dowling, B.A.Sc. (Geological Survey, Ottawa).
Treasurer—A. E. Barlow, D.Sc.
Council—S. P. Cooke, M.D., C.M.; W. C. Cousens, M.D., C.M.; G. S. McCarthy, M.D., C.M.; R. H. Conroy, B.C.L.; D. Corriveau, B.Sc.
Deputy Examiners—D. B. Dowling, B.A.Sc., and M. F. Connor, B.A.Sc.

New York Graduates' Society of McGill University.

ORGANIZED 1895.

President—
1st Vice-President—Wolfred Nelson, M.D., C.M., F.R.G.S.
2nd Vice-President—James Albert Meek, M.D., C.M.
3rd Vice-President—Hiram N. Vineberg, M.D., C.M.
Treasurer—R. A. Gunn, B.A.Sc.
Secretary—W. Ferguson, M.D., C.M. (948 E. 166th St., New York).
Executive Committee—Rev. J. J. Rowan Spong, M.A., B.C.L.; LL.B.; Harcourt Bull, B.A.; J. B. Harvie, M.D., C.M. (Troy).
Non-Resident Councillors—Wm. Osler, M.D., C.M., F.R.C.P.L., F.R.S. (Baltimore, Md.); Prof. the Rev. J. C. Bracq, Vassar College, N.Y.; The Right Rev. J. D. Morrison, M.A., D.D., Bishop of Duluth; R. T. Irvine, M.D., C.M.

McGill Graduates' Society of Toronto.

ORGANIZED 1896.

President—A. R. Lewis, Q.C.

1st Vice-President—Rev. Canon Sweeny, M.A., D.D.

2nd Vice-President—H. C. Burritt, M.D.

Secretary-Treasurer—R. B. Henderson, B.A., 48 King Street, West.

Committee—Hamilton Cassels, B.A.; Willis Chipman, B.A.Sc.; P. E. Ritchie, B.A.

The British Columbia Society of Graduates of McGill University.

President—R. E. McKechnie, M.D. (Nanaimo).

Vice-Presidents—W. F. Ferrier, B.A.Sc. (Rossland); R. W. Jakes, M.D. (Greenwood); W. F. Robertson, B.A.Sc. (Victoria); W. S. Johnson, B.A.Sc. (Slocan City).

Secretary—W. J. McGuigan, M.D., LL.B. (Vancouver).

Treasurer—Simon J. Tunstall, B.A., M.D. (Vancouver).

Executive Committee—R. E. Palmer, B.A.Sc. (Rossland); J. M. McGregor, B.A., B.A.Sc. (Slocan City); J. M. Lefevre, M.D. (Vancouver); D. B. Holden, B.A., M.D. (Victoria); H. W. Mussen, B.A.Sc. (Nelson).

Maritime Graduates' Society of McGill University.

President—W. H. Hattie, M.D. (Halifax).

1st Vice-President—J. H. Scammell, M.D. (St. John, N.B.)

2nd Vice-President—Henry S. Johnson, M.D. (Charlottetown, P.E.I.)

3rd Vice-President—Hugh Ross, M.D. (Stellarton, N.S.)

Secretary-Treasurer—G. G. Corbett, M.D. (Musquash, N.B.)

Executive Committee—F. H. Wetmore, M.D. (Hampton, N.B.); C. M. McLean, M.D. (Sussex, N.B.); J. G. Macdougall, M.D. (Amherst, N.S.); Rev. Robert Laing, M.A. (Halifax); St. C. J. Gallant, M.D. (Charlottetown, P.E.I.); Alex. McNeil, M.D. (Kensington, P.E.I.)

McGill Graduates' Society of the District of Bedford.

ORGANIZED 1898.

Hon. President—Hon. W. W. Lynch, D.C.L. (Knowlton).

President—Rev. J. A. Elliot, B.A. (Cowansville).

Vice-Presidents—Hon. J. C. McCorkill, B.C.L. (Cowansville); C. J. R. Phelan, M.D. (Waterloo); G. N. Boright, B.Sc. (Sutton).

Secretary-Treasurer—G. H. Baker, B.A. (Cowansville).

New England Society of McGill Graduates.

ORGANIZED 1899.

President—Arthur E. Childs, B.Sc. (Boston Mass.).
1st Vice-President—George A. Fagan, M.D. (North Adams, Mass.).
2nd Vice-President—Ambrose Choquet, B.C.L. (Providence, R.I.).
3rd Vice-President—Rev. Robert W. Wallace, B.A. (Somerville, Mass.).
Secretary-Treasurer—Joseph Williams, M.D. (Boston, Mass.; 45 Monument Square).

Councillors—John M. Parker, D.V.S. (Haverhill, Mass.); Robert MacDougall, M.A., Ph.D. (Boston, Mass.); T. G. McGannon, M.D. Lowell, Mass.); Miles Martin, M.D. (Boston, Mass.); W. W. Goodwin, M.D. (East Boston, Mass.); R. T. Glendenning, M.D. (Manchester-by-the-Sea, Mass.).

McGill University Alumini Association of Chicago.

ORGANIZED 1900.

President—R. D. MacArthur, M.D.
1st Vice-President—Christopher McLennan, C.E.
2nd Vice-President—Leonard St. John, M.D.
Secretary-Treasurer—Thomas A. Woodruff, M.D.

Committee—D. R. MacMartin, M.D.; W. L. Copeland, M.D.; J. Brown Loring, M.D.

Undergraduates' Literary Society.

CONSTITUTED 1880.

Hon. President—Principal Peterson.
President—Chauncey Adams, Arts, '02.
1st Vice-President—Milton Jack, Arts, '02.
2nd Vice-President—Charles G. Ogden, Law, '02.
Secretary—W. S. Johnson, Arts, '03.
Treasurer—O. B. McCallum, Arts, '04.

Committee—W. G. Macnaughton, Sc., '05; H. H. Murphy, Arts, '02; Walter J. Healy, Arts, '03; J. Archibald, Arts, '04; A. Wainwright, Law, '02.

Delta Sigma Society.

ESTABLISHED 1884.

President—Elizabeth Irving.
Vice-President—Katharine Wisdom.
Secretary-Treasurer—Catherine Mackenzie.

Committee—M. Gould Smith, Grace Wales, A. Muriel Wilson.

McGill Historical Club.

President—C. A. Adams, Arts, '02.
Vice-President—R. J. Harper, B.A.
Secretary—W. L. Holman, Arts, '03.
Treasurer—W. J. Healy, Arts, '03.
Executive Committee—Prof. C. W. Colby, M.A., Ph.D.; W. C. Munn, Arts, '02; O. B. McCallum, Arts, '04.

The McGill Mining Society.

ORGANIZED 1891.

Hon. President—Dr. J. B. Harrington.
President—C. V. Corless, App. Sci., '02.
Vice-President—W. G. McBride, App. Sci., '02.
Secretary-Treasurer—R. Musgrave, App. Sci., '03.
Second Year Rep.—R. A. Chambers, App. Sci., '04.

Young Men's Christian Association of McGill University.

OBJECT—To promote the Christian character of its members and the cause of Christianity in the University.

MEMBERSHIP.—The active Membership of the Association consists of Graduates and Students of the University who are members of some Evangelical church. Any Graduate and Student of good moral character may become an associate member. A social reception is given to new students at the beginning of the session.

Full particulars regarding regular religious services and Bible Study Classes are given in the Hand Book of the Association.

President—George Irving, Arts, '02.
1st Vice-President—W. J. Cram, Med., '02.
2nd Vice-President—W. C. McBride, Sc., '02.
Recording Secretary—Charles M. McKergow, Sc., '03.
Treasurer—W. G. MacNaughton, Arts, '01.
Asst.-Treasurer—L. C. Lauchland, B.A., Med., '04.
Representative from Law—Chas. Cotton, B.A., Law, '02.
General Secretary—James R. Cox, M.D.

CHAIRMEN OF COMMITTEES.

Religious Meetings—M. Jack, Arts, '02.
Bible Study—C. S. Paterson, Sc., '01.
Social—G. McMurtry, Arts, '01.
Membership—W. J. Cram, Med., '02.
New Students and Handbook—General Secretary.



Part of Campus with Museum in background.

Bulletin and Reading Room—M. Davidson, Arts, '03.
Missionary—E. C. Woodley, B.A.
Musical—E. A. Taggart, Med., '03.
Building—George Irving, Arts, '03.
Graduates—W. F. Hamilton, M.D.
Ladies' Auxiliary—Mrs. W. I. Shaw.

Young Women's Christian Association.

ESTABLISHED 1887 (AS THEO DORA SOCIETY).

OBJECT.—The development of Christian character in the members, and the development of active Christian work, particularly among the young women of the University. Open for membership to students of the Royal Victoria College of Women.

President—Jessie McLachlan.
Vice-President—Grace Wales.
Cor. Secretary—Vivian Clogg.
Rec. Secretary—M. K. McCally.
Treasurer—Edith Simpson.

McGill University Athletic Asscciation.

ESTABLISHED 1884.

Hon. President—Principal Peterson.
Hon. Treasurer—Wm. Osler, M.D.
President—J. H. Boulter, Arts, '01.
Vice-President—F. J. Tees, Arts, '01.
Treasurer—P. W. K. Robertson, App. Sc., 00.
Secretary—L. H. Redon, Med., '01.

McGill University Football Club.

Hon. President—Dr. J. A. Springle.
Hon. Treasurer—Prof. C. H. McLeod.
President—E. G. Mason, Med., '03.
Vice-President—R. W. Kenny, Med., '03.
Hon. Secretary—F. S. Patch, B.A., Med., '03.
Treasurer—L. L. Reford, B.A., Med., '04.
Manager—J. H. Boulter, Med., '03.
Captain 1st XV.—B. Caldwell, Sci., '02.

Committee: Arts—W. Molson, '03; E. W. MacDougall, '03. Law—C. G. Mackinnon, B.A., '03; R. N. Hickson, B.A., '03. Medicine—G. R. Johnson, B.A., '02; R. N. W. Shillington, '03. Science—A. E. Beck, '03; W. F. Graham, '03. Comparative Medicine—L. Doyle, '02; A. D. Harrington, '02.

McGill University Cricket Club.

Hon. President—Lord Strathcona and Mount Royal.
President—Prof. C. E. Moyse.
Vice-President—A. R. Oughtred, B.C.L.
Secretary-Treasurer—Herbert M. Little, B.A., Med., '01.
Assist. Secretary—Hugh W. Wonham.
Captain—H. Cyril Hill.
Committee—A. B. Wood, B.A.; E. H. McLea, B.Sc.; W. W. Walker; E. E. Macdonald, Med., '01; P. Molson, Arts, '01.

McGill University Lawn Tennis Club.

President—J. Arthur Fairie, Med., '01.
Vice-President—L. Macfarlane, B.C.L.
Secretary—J. J. Meagher, Arts, '01.
Treasurer—R. N. Hickson, Arts, '01.
Committee: Arts—P. Molson, '01. Law—W. W. Skinner, '01. Medicine—F. F. Wilkins, '01. App. Science—H. M. Scott, '01.

McGill University Skating Club.

President—J. H. Copeman, Arts, '01.
Vice-President—D. MacCallum, Med., '03.
Secretary—G. P. Cole, Sc., '03.
Treasurer—J. Cameron, Sc., '03.
Committee: Law—C. M. Cotton, C. G. Mackinnon. Medicine—H. G. F. Blair, C. R. Gilmour, J. D. G. MacCullum. Arts—J. H. Copeman, P. Molson, S. L. D. Harris. Science—G. P. Cole, J. A. Cameron, E. J. Carlyle.

McGill Hockey Club.

Hon. President—Prof. S. H. Capper.
President—W. Ness, '02.
Vice-President—C. R. Gilmour, '02.
Secretary-Treasurer—T. McPherson, '01.
Manager—W. Le M. Carter, '02.
Committee: Law—C. G. McKinnon, '03; T. M. Tansey, '03. Science—G. G. Gale, '03; J. A. Cameron, '03. Arts—P. Molson, '01; J. McDonald, '01. Medicine—E. R. Belanger, '01; J. J. Andrews, '03 .

Benefactors of McGill University, Montreal.

I. General Endowments and Subscriptions.

1. Original Endowment, 1811.

THE HONORABLE JAMES McGILL, who was born at Glasgow, 6th Oct., 1744, and died at Montreal, 19th Dec., 1813, by his last will and testament, under date 8th January, 1811, devised the estate of Burnside, situated near the city of Montreal, and containing forty-seven acres of land, with the Manor House and Buildings thereon erected, and also bequeathed the sum of ten thousand pounds in money unto the "Royal Institution for the Advancement of Learning," a Corporation constituted in virtue of an Act of Parliament passed in the Forty-first Year of the Reign of His Majesty, King George the Third, to erect and establish a University or College, for the purpose of Education and the advancement of learning, in the Province of Lower Canada, with a competent number of professors and teachers to render such Establishment effectual and beneficial for the purposes intended; requiring that one of the colleges to be comprised in the said University should be named and perpetually be known and distinguished by the appellation of "McGill College."

The value of the above mentioned property was estimated at the date of the bequest at $120,000

2. University Buildings, Etc.

THE WILLIAM MOLSON HALL, being the west wing of McGill College buildings, with the connecting Corridors and Class Rooms, was erected in 1861, through the munificent donation of the founder, whose name it bears.

THE PETER REDPATH MUSEUM, the gift of the donor whose name it bears, was announced by him as a donation to the University in 1880, and formally opened August, 1882.

Lots for University buildings adjoining the College grounds confronting on McTavish St., presented by J. H. R. Molson, Esq.,—$42,500.

THE UNIVERSITY LIBRARY BUILDING, the gift of Peter Redpath, Esq., announced by him as a gift to the University in 1891, and formally opened October 31st, 1893. Enlarged by Mrs. Peter Redpath in 1900.

UNIVERSITY OFFICES, Rooms in East Wing remodelled and furnished for offices of Principal and Secretary and for a Board Room, by Sir Wm. C. Macdonald, in 1895.

3. Endowed Chairs, Etc.

THE JOHN FROTHINGHAM PRINCIPAL FUND, to be invested for the endowment of the Principalship of the University; founded in 1889 by the Rev. Frederick Frothingham and Mrs. J. H. R. Molson, —$40,000.

THE MACDONALD AUXILIARY FUND, founded in 1897 by Sir Wm. C. Macdonald, the interest to be used solely to maintain the income of certain of his endowments on a five per cent. per annum basis, —$328,750.

4. Endowments and Donations of Medals and Prizes.

1883, a Gold, a Silver and a Bronze Medal were given by R. J. Wicksteed, Esq., M.A., LL.D., for competition in "Physical Culture," by Students in the Graduating Class and second year of any Faculty, who have attended the University Gymnasium. The Gold Medal was continued to 1889 and the Silver and Bronze have been continued to date.

Ottawa Valley Graduates' Society's Exhibition. For competition by candidates from the Ottawa Valley at the June matriculation examinations of any Faculty. Value, $50.00. Given annually, 1895 to 1899.

A Prize given by the British Columbia Society of Graduates of McGill University to be divided amongst the five Faculties. Annual value $50.00. Given annually, 1896 to 1898.

5. Subscriptions to General Endowment.

1856.

John Frothingham, Esq.	$2000	Forward	$19,200
John Torrance, Esq.	2000	Moses E. David, Esq.	600
James B. Greenshields, Esq.	1200	Wm. Carter, Esq.	600
Wm. Busby Lambe, Esq.	1200	Thomas Patton, Esq.	600
Sir George Simpson, Knight.	1000	Wm. Workman, Esq.	600
Henry Thomas, Esq.	1000	Hon. Luther H. Holton	600
John Redpath, Esq.	1000	Henry Lyman, Esq.	600
James McDougall, Esq.	1000	David Torrance, Esq.	600
James Torrance, Esq.	1000	Edwin Atwater, Esq.	600
Hon. James Ferrier	1000	Theodore Hart, Esq.	600
Harrison Stephens, Esq.	800	Wm. Forsyth Grant, Esq.	600
Henry Chapman, Esq.	600	Robert Campbell, Esq.	600
Hon. Peter McGill	600	Alfred Savage, Esq.	600
John James Day, Esq.	600	James Ferrier, jun., Esq.	600
Thomas Brown Anderson, Esq.	600	Wm. Stephen, Esq.	600
Peter Redpath, Esq.	600	N. S. Whitney, Esq.	600
Thomas M. Taylor, Esq.	600	William Dow, Esq.	600
Joseph Mackay, Esq.	600	William Watson, Esq.	600
Donald Lorn McDougall, Esq.	600	Edward and Alicia Major	600
Hon. Sir John Rose	600	Hon. Sir A. T. Galt	360
Charles Alexander, Esq.	600	John R. Esdaile, Esq.	200
Forward	$19,200	Total	$30,560

1871.

John Frothingham, Esq.	$5150	Forward	$24,350
William Molson, Esq.	5000	T. W. Ritchie, Esq.	300
Sir William C. Macdonald	5000	Messrs. Sinclair, Jack & Co.	250
Thomas Workman, Esq.	5000	John Reddy, M.D.	100
J. H. R. Molson, Esq.	2000	Wm. Lunn, Esq.	100
John McLennan, Esq.	1000	Hon. F. W. Torrance.	60
B. Gibb, Esq.	600	Wm. Rose, Esq.	50
Messrs. A. & W. Robertson.	600		
Forward	$24,350	Total	$25,210

1881-82.

Hugh McLennan, Esq.	$5000	Forward	$21,000
Hon. G. A. Drummond	4000	O. S. Wood, Esq.	1000
George Hague, Esq.	3000	J. B. Greenshields, Esq. (London)	1000
M. H. Gault, Esq.	2000	Warden King, Esq.	1000
Andrew Robertson, Esq.	1000	W. P. Cumming, Esq.	1000
Robertson Campbell, Esq.	1000	Mrs. Hew Ramsay	500
Sir Jos. and Lady Hickson	1000	R. A. Ramsay, Esq.	500
Mrs. Andrew Dow.	1000	H. H. Wood, Esq.	500
Alexander Murray, Esq.	1000	James Burnett, Esq.	500
Miss Orkney	1000	Charles Gibb, Esq.	500
Hector McKenzie, Esq.	1000	J. S. McLachlan, Esq.	200
Forward	$21,000	Total	$27,700

1883-84.

Edward Mackay, Esq. $5,000

6. Endowment Fund for General Purposes.

1897.

Bequest of the late John H. R. Molson, Esq., $100,000.

7. Subscription for Improvements to College, 1856.

Hon. Charles Dewey Day $200

8. Subscriptions for Current Expenses, 1881-82.

Principal Dawson					$1000
J. H. R. Molson	$1000	per annum,	5	years, being	5000
Lord Mountstephen	1000	"	"	"	5000
Lord Strathcona and Mount Royal	1000	"	"	"	5000
David Morrice, Esq.	200	"	"	"	1000
Messrs. Gault Brothers & Co.	200	"	"	"	1000
Messrs. S. H. & A. S. Ewing	200	"	"	"	1000
Hon. Robert MacKay	300	"	2 "	"	600
Jonathan Hodgson, Esq.	100	"	5 "	"	500
Geo. M. Kinghorn, Esq.	100	"	"	"	500
David J. Greenshields, Esq.					300
Thomas Craig, Esq.	100	"	2 "	"	200
John Rankin, Esq.					200
John Duncan, Esq.					200
George Brush, Esq., $25 for five years, being					125
Robert Benny, Esq.					100
Miss E. A. Ramsay					100
Hugh Paton, Esq., $50 for two years, being					100
J. M. Douglas, Esq.					50
James Court, Esq.					50
Total					$22,025

1887-88.

John H. R. Molson, Esq.	$1000	per annum,	3	years, being	$3000
Sir Wm. C. Macdonald	1000	"	"	"	3000
Peter Redpath, Esq.	1000	"	"	"	3000
Lord Strathcona and Mount Royal	1000	"	"	"	3000
Hon. James Ferrier	500	"	"	"	1500
Sir Joseph Hickson	500	"	"	"	1500
Hugh McLennan, Esq.	250	"	"	"	750
E. B. Greenshields, Esq.	250	"	"	"	750
George Hague, Esq.	250	"	"	"	750
John Molson, Esq.	250	"	"	"	750
Samuel Finley, Esq.	250	"	"	"	750
Mrs. Mackay, $100 annually, 1889 to 1893					500
Total					$19,250

9. Subscription by Members of Board of Governors, in

1898-99.—$191,000.

10. Subscriptions for a Building for the Carpenter Collection of Shells.

1868.

Peter Redpath, Esq.	$ 500	Forward	$1,600
William Molson, Esq...	500	Geo. H. Frothingham, Esq.	100
Harrison Stephens, Esq.. ..	100	Wm. Dow, Esq..	100
Robert J. Reekie, Esq.	100	Thomas Rimmer, Esq.	100
John H. R. Molson, Esq. ..	100	Andrew Robertson, Esq.. ..	100
Sir Wm. E. Logan, F.R.S...	100	Mrs. Redpath	100
John Molson, Esq.	100	Benaiah Gibb, Esq.	50
Thos. Workman, Esq., M.P.	100	Hon. John Rose..	50
Forward	$1,600	Total	$2,200

11. Subscriptions for the Erection of the Lodge and Gates.

William Molson, Esq..	$ 100	Forward	$1,100
John H. R. Molson, Esq.. ..	100	John Frothingham, Esq... ..	100
William Workman, Esq.. ..	100	James A. Mathewson, Esq..	100
Joseph Tiffin, jun., Esq.	100	Peter Redpath, Esq.	100
Thos. J. Claxton, Esq.	100	G. H. Frothingham, Esq. ..	100
James Linton, Esq.	100	G. D. Ferrier, Esq.	100
William McDougall, Esq. ..	100	John Smith, Esq.	100
Charles J. Brydges, Esq... ..	100	Charles Alexander, Esq.. ..	100
Hon. George A. Drummond.	100	J. Evans, Esq.	100
Thomas Rimmer, Esq.	100	Henry Lyman, Esq.	50
William Dow, Esq.	100	Total	$1,950
Forward	$1,100		

12. Library and Museum.

Special Collections of Books Presented to the Library.

1. The **Peter Redpath Collection of Historical Books**, presented by Peter Redpath, Esq., of Montreal, 3,500 Volumes, with subsequent additions.
2. The Robson Collection of works in Archæology and General Literature, presented by Dr. John Robson, of Warrington, England, 3,436 Volumes.
3. The Charles Alexander Collection of Classical Works, presented by C. Alexander, Esq., of Montreal, 221 Volumes.
4. **Frederick Griffin**, Esq., Q.C., Collection of Books, being the whole of his Library, bequeathed by his will, 2,695 Volumes.
5. The Hon. Mr. Justice Mackay, Collection of Books, being the whole of his Library, 2,007 Volumes.
6. The "T. D. King Shakespeare Collection," presented by Lord Strathcona and Mount Royal and Sir W. C. Macdonald, of Montreal, being 214 Volumes.
7. The Ribbeck Library of Classical Literature, presented by Sir W. C. Macdonald, about 4,000 works.
8. The "Mendelssohn Choir Memorial Collection," presented by Joseph Gould, Esq., 200 volumes.
9. The "John Horne" Collection of Canadian Portraits and Autographs, 177 in all.

Endowments for Library.

Wm. Molson, Esq., for Endowment of a Library Fund (1871).. $ 4,000
Hon. F. W. Torrance for Endowment of Mental, Moral and Political Philosophy Book Fund (1876) 1,000
Mrs. Redpath, for the Endowment of the Wm. Wood Redpath Memorial Fund (1881).. 1,000

A Friend, by the Hon. F. W. Torrance, for Endowment of a Library Fund (1882)	400
Hugh S. McLennan, Library Endowment, a gift from Estate late Hugh S. McLennan to the Library of McGill College, the income to be applied to binding (1892)	250
Total	$ 6,650

Subscriptions, Etc., to Library.

John Thorburn for purchase of Books	$ 90
Andrew Drummond, do., for Applied Science	25
The Graduates in Arts and Applied Science of 1885 for purchase of Books	31
Ditto, ditto, of 1886	28
The late R. A. Ramsay, Esq., Bequest for purchase of books (1887)	1,000
Andrew Drummond, Esq., to Library Fund of Faculty of Applied Science	25
Lord Strathcona and Mount Royal, for purchase of books from the R. W. Boodle Library	200
Ottawa Valley Graduates' Society, for binding books in the University Library	25
Peter Redpath, Esq., in aid of the new catalogue of the Library (1892)	500
Mrs. Peter Redpath for maintenance of Library, $5,000 per annum since 1894	35,000
Lord Strathcona and Mount Royal, donation for the purchase of books for the Library, particularly in the French Department (1897)	250
John H. R. Molson, donation for purchase of books for the Library (1897)	195
Hon. Treas. Redpath Memorial Fund, London, England. The balance remaining over of the above fund to be used for purchase of books for the Library	47
Estate late Hugh McLennan, for support of Travelling Libraries	400
Total	$32,816

Special Collections Presented to the Museum.

1. The Holmes Herbarium, presented by the late Andrew F. Holmes, M.D.
2. The Carpenter Collection of Shells, presented by the late P. P. Carpenter, Ph.D.
3. The Collection of Casts of Ivory Carvings, issued by the Arundel Society, presented by Henry Chapman, Esq.
4. The McCulloch Collection of Birds and Mammals, collected by the late Dr. M. McCulloch, of Montreal, and presented by his heirs.
5. The Logan Memorial Collections of Specimens in Geology and Natural History, presented by the heirs of the late Sir W. E. Logan, LL.D., F.R.S.
6. The Dawson Collection in Geology and Palæontology, being the Private Collections of Principal Dawson, presented by him to the Museum.
7. The Bowles Collection of Lepidoptera, presented by Sir Wm. C. Macdonald and J. H. Burland, Esq.
8. R. Morton Middleton, Jr., London, Eng., Collection of Plants.
9. Collection of Butterflies, presented by the Members of the Board of Governors of the University.
10. Collection of Lepidoptera, presented by Sir W. C. Macdonald. (See also "List of Donations to the Library and Museum," printed in the Annual Report of the University and Report of the Museum.)

Endowment for the Museum.

Wm. Molson, Esq., for the Endowment of a Museum Fund (1873) .. .. ..

II. Endowments and Subscriptions for the Faculty of Arts.

1. Buildings, Chairs, Etc.

Endowment Fund, 1856.

John Gordon McKenzie, Esq... .. ..$2,000
Ira Gould, Esq... .. .. 2,300—Total, $4,300

THE MOLSON CHAIR OF ENGLISH LANGUAGE AND LITERATURE, in 1856, endowed by the Honorable John Molson, Thomas Molson, Esq., and William Molson, Esq.—$20,000; and supplemented in 1892 by John H. R. Molson, Esq., with a further sum of $20,000. Total, $40,000.

THE PETER REDPATH CHAIR OF PURE MATHEMATICS (founded as Chair of Natural Philosophy), in 1871, endowed by Peter Redpath, Esq., $20,000.

THE LOGAN CHAIR OF GEOLOGY, in 1871, endowed by Sir W. E. Logan, LL.D., F.R.S., and Hart Logan, Esq.—$20,000.

THE JOHN FROTHINGHAM CHAIR OF MENTAL AND MORAL PHILOSOPHY, 1873, endowed by Miss Louisa Frothingham,—$20,000; and supplemented in 1891 with a further sum of $20,000. Total $40,000.

THE MAJOR HIRAM MILLS CHAIR OF CLASSICS, in 1882, endowed by the last will of the late Major Hiram Mills, of Montreal,—$42,000.

THE DAVID J. GREENSHIELDS CHAIR OF CHEMISTRY AND MINERALOGY in the Faculties of Arts and Applied Science, in 1883, endowed by the last will of the late David J. Greenshields, Esq., of Montreal, with the sum of $40,00, half of which is devoted to the Faculty of Arts.

THE MACDONALD CHAIRS OF PHYSICS, in the Faculties of Arts and Applied Science, endowed by Sir William C. Macdonald, in 1890,—$50,000; in 1893,—$50,000. Total, $100,000.

THE CHARLES GIBB BOTANICAL ENDOWMENT, subscriptions received to date :

A Friend.. .. ..$8,000
Mrs. Catherine Hill. .. .. 200—Total, $8,200

THE MACDONALD PHYSICS BUILDING AND EQUIPMENT, in the Faculties of Arts and Applied Science. The gift of Sir William C. Macdonald, announced by him as a gift to the University in 1890, and formally opened February, 1893.

THE MACDONALD PHYSICS BUILDING MAINTENANCE FUND in the Faculties of Arts and Applied Science, endowed by Sir William C. Macdonald, in 1892 and 1896, $150,000.

THE MACDONALD CHEMISTRY AND MINING BUILDING AND EQUIPMENT, given to the University by Sir William C. Macdonald, in 1896, $267,141.80.

THE MACDONALD CHEMISTRY AND MINING BUILDING MAINTENANCE FUND, endowed by Sir William C. Macdonald, in 1897 and 1899, $225,000.

THE MACDONALD CHEMISTRY ENDOWMENT FUND, endowed by Sir William C. Macdonald, in 1890, $135,000.

THE KINGSFORD CHAIR OF HISTORY, endowed by Sir Wm. C. Macdonald, in 1898, $50,000.

THE DAWSON CHAIR OF GEOLOGY, endowed by Sir Wm. C. Macdonald in 1899, $50,000.

THE MACDONALD BUILDINGS REPAIR FUND, endowed in 1900 by Sir William C. Macdonald, $15,000.

2. Endowment for Pension Fund.

This endowment was given in 1894 to be invested and the revenue used exclusively for providing Pensions or Retiring Allowances for members of the teaching staff of the Faculties of Arts and Applied Science.

Lord Strathcona and Mount Royal.$50,000
John H. R. Molson.. 50,000
Sir William C. Macdonald .. .. 50,000—Total, $150,000

3. Exhibitions and Scholarships, Etc.

THE JANE REDPATH EXHIBITION, in the Faculty of Arts,—founded in 1868, by Mrs. Redpath, of Terrace Bank, Montreal, and endowed with the sum of $1,667.

THE MACDONALD SCHOLARSHIPS AND EXHIBITIONS, 10 in number, in the Faculty of Arts—founded in 1871, and endowed in 1882 with the sum of $25,000 by Sir William C. Macdonald.

THE CHARLES ALEXANDER SCHOLARSHIP, for Classics—founded in 1871 by Charles Alexander, Esq. Endowed in 1893 with the sum of $2,000.

THE BARBARA SCOTT SCHOLARSHIP FOR CLASSICAL LANGUAGE AND LITERATURE—founded in 1884 by the last will of the late Miss Barbara Scott, of Montreal, and endowed with the sum of $2,000.

THE GEORGE HAGUE EXHIBITION—founded in 1881—Annual value $125.

THE MAJOR HIRAM MILLS MEDAL AND SCHOLARSHIP—founded by the will of the late Major Hiram Mills, of Montreal, and endowed with the sum of $1,500.

T. M. THOMPSON, ESQ.—$250 for two Exhibitions in September, 1871; $200 for two Exhibitions in 1872,—$450.

REV. COLIN C. STUART—for the "Stuart Prize in Hebrew,"—$60.

THE TAYLOR SCHOLARSHIP—founded in 1871, by T. M. Taylor, Esq.—Annual value $100—terminated in 1878.

PROFESSOR ALEXANDER JOHNSON—for Scholarship for three Sessions, terminated 1886-87—$350.

HER MAJESTY'S COMMISSION for the Exhibition of 1851—Nomination Scholarships for 1891, 1893, 1895, 1897 and 1899, value £150 annually, tenable for two years.

THE PHILIP CARPENTER FELLOWSHIP—founded by Mrs. Philip Carpenter, for the Maintenance of a Post-Graduation Teaching Fellowship or Scholarship in Natural Science or some branch thereof in the Faculty of Arts in McGill College, endowed in 1892 with the sum of $7,000.

A Lady, to provide for three tuitions in the Faculty of Arts for sessions 1892-93 1893-94.

THE NEW YORK GRADUATE SOCIETY EXHIBITION—for an Exhibition in the Faculty of Arts to be associated with the name of Sir William Dawson—Annual value $60—given in 1897 and 1898.

To provide Bursaries in the Faculty of Arts, subscriptions from

W. W. Ogilvie.. .. ..1898 and 1899....$2,000
Hugh McLennan.. ..1898 and 1899.... 240
D. Macmaster .. .. ..1898.. 120

4. Endowments and Donations of Medals and Prizes.

In 1856 Henry Chapman, Esq., founded a gold medal, to be named the "Henry Chapman Gold Medal," to be given annually in the graduating class in Arts. This medal was endowed by Mr. Chapman in 1874 with the sum of $700.

In 1860 the sum of £200, presented to the College by H.R.H. the Prince of Wales, was applied to the foundation of a Gold Medal, to be called the "Prince of Wales Gold Medal," which is given in the graduating class for Honour Studies in Mental and Moral Philosophy.

In 1864 the "Anne Molson Gold Medal" was founded and endowed by Mrs. John Molson, of Belmont Hall, Montreal, for an Honour Course in Mathematics and Physics.

In the same year the "Shakespeare Gold Medal," for an Honour Course, to comprise and include the works of Shakespeare and the Literature of England from his time to the time of Addison, both inclusive, and such other accessory subjects as the Corporation may from time to time appoint, was founded and endowed by citizens of Montreal, on occasion of the three hundredth anniversary of the birth of Shakespeare.

In the same year the "Logan Gold Medal" for an Honour Course in Geology and Natural Science was founded and endowed by Sir William Logan, LL.D., F.R.S., F.G.S., etc.

In 1874 a Gold and a Silver Medal were given by His Excellency the Earl of Dufferin, Governor General of Canada, for competition in the Faculty of Arts, and continued till 1878.

In 1875 the "Neil Stuart prize in Hebrew" was endowed by Neil Stuart, Esq., of Vankleek Hill, in the sum of $340.

In 1880 a Gold and a Silver Medal were given by His Excellency the Marquis of Lorne, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1883.

In 1884 a Gold and a Silver Medal were given by His Excellency the Marquis of Lansdowne, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1888.

In 1889 a Gold and a Silver Medal were given by His Excellency Lord Stanley, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1893.

THE "CHARLES G. COSTER MEMORIAL PRIZE" for general proficiency —given annually by Colin H. Livingstone, Esq., B.A.; founded in 1889.

In 1894 a Gold and a Silver Medal were given by His Excellency the Earl of Aberdeen, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1898.

In 1899 a Gold and a Silver Medal were given by His Excellency the Earl of Minto, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued to date.

5. Subscriptions for the Support of the Chair of Botany. 1883-84.

Sir Wm. Dawson	$500	per annum,	5 years,	being	$2500
Lord Strathcona and Mount Royal	250	"	"	"	1250
J. H. R. Molson, Esq.	100	"	"	"	500
Mrs. J. H. R. Molson	100	"	"	"	500
G. Hague, Esq.	100	"	"	"	500
Mrs. Redpath	100	"	"	"	500
Hugh McKay, Esq.	100	"	"	"	500
Robert Moat, Esq.	100	"	"	"	500
Sir Wm. C. Macdonald	100	"	"	"	500
Charles Gibb, Esq.	50	"	"	"	250
Miss Orkney	50	"	"	"	250
Robert Mackay, Esq.	50	"	"	"	250
Mrs. Wm. Molson	50	"	"	"	250
Mrs. John Molson	50	"	"	"	250
John Stirling, Esq.	50	"	"	"	250
Warden King, Esq.	50	"	"	"	250
Miss Hall	50	"	"	"	250

Robert Angus, Esq.	$50	per annum,	5	years, being	$250
D. A. P. Watt, Esq.	50	"	"	"	250
Hugh McLennan, Esq.	25	"	"	"	125
Sir Joseph Hickson	10	"	"	"	50
Mrs. Phillips					20
Total					$9,945

6. Botanic Garden, Etc.

Subscriptions, 1890–91.

Hugh McLennan, Esq.	$ 100	Forward	$ 900
Gilman Cheney, Esq.	100	Jonathan Hodgson, Esq.	100
James Johnston, Esq.	100	Robert Mackay, Esq.	100
James Slessor, Esq.	100	H. Shorey, Esq.	50
A Friend	100	J. S. Shearer, Esq.	50
Hugh Graham, Esq.	100	Geo. Sumner, Esq.	25
A. F. Gault, Esq.	100	A. Ramsay & Co.	25
W. T. Costigan, Esq.	100	Garth & Co.	25
Jonathan Brown, Esq.	100		
Forward	$ 900	Total	$1,275

To Erect Plant House in Botanic Garden.

Lord Strathcona and Mount Royal	$ 362.00
John H. R. Molson, Esq.	361.51
Sir William C. Macdonald	361.02
Total	$1084.53

For Support of Botanical Laboratory.

Sir W. C. Macdonald (1900)	$ 300.00

7. Subscriptions in Aid of the Chair of Hebrew.

Warden King, Esq.	in 1889	$50	per annum,	3	years, being	$ 150
Sir William Dawson.	"	50	"	"	"	150
Hon. Hugh Mackay	"	50	"	"	"	150
A. F. Gault, Esq.	"	25	"	"	"	75
Geo. Hague, Esq.	"	25	"	"	"	75
T. A. Dawes, Esq.	"	25	"	"	"	75
S. Carsley, Esq.	"	25	"	"	"	75
S. Davis, Esq.	in 1892					20
Warden King, Esq.	"	50	per annum	for	3 years	150
A. F. Gault, Esq.	"	50	"	"		150
Robert Mackay, Esq.	"	50	"	"		150
Hugh McLennan, Esq.	"	25	"	"		75
George Hague, Esq.	"	25	"	"		75
T. A. Dawes, Esq.	"	25	"	"		75
S. Carsley, Esq.	"					25
J .Murphy, Esq.	"					25
Total						$1495

8. Subscriptions to Provide Sessional Lecturers, Etc.

Lord Strathcona and Mount Royal, sessions 1891-92 to 1898-99	$42,000
Mrs. John H. R. Molson, sessions 1891-92 to 1899-1900	8,300
Sir Wm. C. Macdonald, to provide for certain salaries in the Department of Physics, etc., sessions 1894-95 and 1895-96	2,627
Total	$52,927

9. Endowments for Apparatus.

The Local Committee of the British Association for the Advancement of Science to found the British Association Apparatus Fund in the Faculties of Arts and Applied Science, in commemoration of the meeting of the Association in Montreal in 1884 .. .. ..

3. Endowments Held in Trust by the Board of Royal Institution.

The "Hannah Willard Lyman Memorial Fund," contributed by subscriptions of former pupils of Miss Lyman, and invested as a permanent endowment to furnish annually a Scholarship or Prizes in a "College for Women" affiliated to the University, or in classes for the Higher Education of Women, approved by the University. The amount of the fund is at present $1,100.

The "Annie McIntosh Prize," contributed by pupils and friends of the late Miss Annie M. McIntosh, of Bute House, Montreal. The income to be given as a prize to women in the Faculty of Arts, $425.

IV. Endowments and Subscriptions for the Faculty of Applied Science.

1. Buildings, Chairs, Etc.

THE WILLIAM SCOTT CHAIR OF CIVIL ENGINEERING, in 1884, endowed by the last will of the late Miss Barbara Scott, of Montreal,—$30,000.

THE DAVID J. GREENSHIELDS CHAIR OF CHEMISTRY AND MINERALOGY, in the Faculties of Arts and Applied Science, in 1883, endowed by the last will of the late David J. Greenshields, Esq., of Montreal, with the sum of $40,000, half of which is devoted to the Faculty of Applied Science.

THE THOMAS WORKMAN DEPARTMENT OF MECHANICAL ENGINEERING—founded in 1891 under the last will of the late Thomas Workman, Esq., who bequeathed the sum of $117,000—$60,000 for the maintenance of a Chair of Mechanical Engineering, with the assistance, shops, machinery and apparatus necessary thereto, $57,000 to be expended in provision of necessary buildings, machinery and apparatus.

SIR WILLIAM C. MACDONALD, in 1890, towards erection of Thomas Workman Workshops, $20,000.

THE MACDONALD ENGINEERING BUILDING AND EQUIPMENT—announced by Sir Wm. C. Macdonald as a gift to the University in 1890, and formally opened February, 1893.

THE MACDONALD PHYSICS BUILDING AND EQUIPMENT in the Faculties of Arts and Applied Science, the gift of Sir William C. Macdonald, announced by him as a gift to the University in 1890, and formally opened February, 1893.

THE MACDONALD CHAIRS OF PHYSICS, in the Faculties of Arts and Applied Science, endowed by Sir William C. Macdonald, in 1890—$50,000, in 1893, $50,000. Total, $100,000.

THE MACDONALD CHAIR OF ELECTRICAL ENGINEERING—endowed by Sir Wm. C. Macdonald, in 1891, with the sum of $40,000; in 1898, with the additional sum of $10,000. Total, $50,000.

THE MACDONALD ENGINEERING BUILDING MAINTENANCE FUND, endowed by Sir Wm. C. Macdonald, in 1892 and 1896.—$85,000.

THE MACDONALD PHYSICS BUILDING MAINTENANCE FUND in the Faculties of Arts and Applied Science, endowed by Sir Wm. C. Macdonald, in 1892 and 1896—$150,000.

THE MACDONALD CHEMISTRY AND MINING BUILDING AND EQUIPMENT, given to the University by Sir William C. Macdonald, in 1896.—$267,141.80.

THE MACDONALD CHEMISTRY AND MINING BUILDING MAINTENANCE FUND, endowed by Sir William C. Macdonald, in 1897 and 1899—$225,000.

THE MACDONALD CHAIR OF MINING AND METALLURGY, endowed in 1896 by Sir William C. Macdonald, with the sum of $50,000.

THE MACDONALD CHAIR OF ARCHITECTURE, endowed in 1896 by Sir Wm. C. Macdonald, with the sum of $50,000.

THE MACDONALD CHAIR OF CHEMISTRY, endowed in 1897 by Sir William C. Macdonald, with the sum of $50,000.

THE MACDONALD ARCHITECTURAL DEPARTMENT MAINTENANCE FUND, endowed by Sir William C. Macdonald, in 1898.—$10,000.

THE MACDONALD MINING AND METALLURGICAL DEPARTMENT ENDOWMENT FUND, endowed by Sir Wm. C. Macdonald, in 1899.—$55,000.

THE MACDONALD CHEMICAL DEPARTMENT ENDOWMENT FUND, endowed by Sir Wm. C. Macdonald, in 1900.—$135,000.

THE MACDONALD BUILDINGS REPAIR FUND, endowed in 1900 by Sir William C. Macdonald.—$15,000.

2. Endowment for Pension Fund.

This endowment was given in 1894 to be invested and the revenue used exclusively for providing Pensions or Retiring Allowances for members of the teaching staff of the Faculties of Arts and Applied Science.

Lord Strathcona and Mount Royal.$50,000
John H. R. Molson.. 50,000
Sir William C. Macdonald .. .. 50,000—Total, $150,000

3. Exhibitions and Scholarships.

THE SCOTT EXHIBITION.—Founded by the Caledonian Society of Montreal, in commemoration of the Centenary of Sir Walter Scott, and endowed in 1872 with the sum of $1,100 subscribed by members of the Society, and other citizens of Montreal. The Exhibition is given annually in the Faculty of Applied Science—Annual value $50.

THE BURLAND SCHOLARSHIP, founded 1882 by J. H. Burland, B.A.Sc., $100 for a Scholarship in Applied Science for three years, being $300.

HER MAJESTY'S COMMISSION for the Exhibition of 1851—Nomination Scholarships for 1891, 1893, 1895, 1897 and 1899, value £150 annually, each tenable for two years.

THE DR. T. STERRY HUNT SCHOLARSHIP.—Founded in 1894 by the will of the late Dr. T. Sterry Hunt, and endowed with the sum of $2,082, the income to be given and paid annually to a student or students of Chemistry.

4. Medals and Prizes.

In 1880 a Gold and a Silver Medal were given by His Excellency the Marquis of Lorne, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1883.

In 1884 a Gold and a Silver Medal were given by His Excellency the Marquis of Lansdowne, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1888.

In 1885 the British Association Gold Medal for competition in the Graduating class in the Faculty of Applied Science, was founded by subscription of members of the British Association for the Advancement of Science, and by gift of the Council of the Association, in commemoration of its meeting in Montreal in the year 1884.

In 1889 a Gold and a Silver Medal were given by His Excellency Lord Stanley, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1893.

In 1894 a Gold and a Silver Medal were given by His Excellency the Earl of Aberdeen, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued till 1898.

In 1899 a Gold and a Silver Medal were given by His Excellency the Earl of Minto, Governor-General of Canada, the former for competition in the Faculty of Arts, the latter for competition in the Faculty of Applied Science. Continued to date.

5. Endowment and Subscriptions for Maintenance of Faculty.

Endowment Fund.

Daniel Torrance, Esq.	$5,000
Charles J. Brydges, Esq.	1,000
R. J. Reekie, Esq.	100
Total	$6,100

Graduates' Endowment Fund.

Graduates' Endowment Fund—Class 1890, $70 a year for 5 years, $350; received to date	$85

Annual Subscriptions, 1871-1879.

Hon. James Ferrier ($100 per annum for 10 years)	$ 1,000
Peter Redpath, Esq. ($400 per annum for 10 years)	4,000
John H. R. Molson, Esq. ($400 per annum for 10 years)	4,000
George H. Frothingham, Esq. ($400 per annum for 7 years)	2,800
T. James Claxton, Esq. ($100 per annum for 6 years)	600
Donald Ross, Esq. ($50 per annum for 5 years)	250
Miss Mary Frothingham ($400 per annum for 3 years)	1,200
H. McLennan, Esq. ($100 per annum for 5 years)	500
A. F. Gault, Esq. ($100 per annum for 5 years)	500
Gilbert Scott, Esq. ($100 for 2 years)	200
Joseph Hickson, Esq. ($100 for 2 years)	200
Sir Wm. Dawson ($300 for 2 years)	600
His Excellency the Marquis of Lorne	500
Mrs. Redpath (Terrace Bank)	100
Total	$16,450

Subscriptions towards Maintenance of Engineering Department.

Sir Wm. C. Macdonald,	sessions 1891-92 to 1897-98	$56,341
do	for advertising	675
do	to cover certain salaries, session 1894-95 and 1897-98	1,920
do	to meet the expenses of the course of summer work for Mining Engineering Students (1898)	825
do	Electric Light Re-installation in Engineering Building, 1899	6,000
do	to cover salary of Assistant in Chemical Department, session 1898-99 and session 1899-1900	1,000
Total		$66,761

Subscriptions to Provide Lectures in Mechanical and Sanitary Engineering.

E. B. Greenshields, Esq.	$ 50
J. E. Bovey, Esq.	50
Professor H. T. Bovey	61
Forward	$161
Forward	$161
Jeffrey H. Burland, B.A.Sc., $100 for 2 years.	200
Smaller amounts	40
Total	$401

Subscriptions for Maintenance of Chair of Practical Chemistry, 1862.

Hon. C. Dunkin, M.P.	$1,200
Sir William Dawson	1,200
Peter Redpath, Esq.	226
Total	$2,626

For Maintenance of Chair of Mining Engineering and Metallurgy, 1891.

R. B. Angus, Esq.	$2000	
Mrs. Dow	1000	
Hugh McLennan, Esq.	1000	
Miss Benny	1000	
T. A. Dawes, Esq.	750	
A. A. Ayer, Esq.	250	
G. W. Reid, Esq.	100	
Evans Bros.	100	
	$ 6,200	
Payable in Three Years.		
Sir W. Dawson	1000	
Alex. Stuart, Esq. (London, Eng.)	1500	
R. G. Reid, Esq.	1500	
Forward	$4,000	$6,200

Forward	$4,000	$6,200
E. K. Greene, Esq.	750	
Dr. T. Brainerd	750	
A. F. Gault, Esq.	750	
Messrs. H. & A. Allan	750	
Hector Mackenzie, Esq.	750	
Peter Lyall, Esq.	750	
James Ross, Esq.	600	
A. Robertson, Esq.	300	
John Duncan, Esq.	300	
George Hague, Esq.	300	
Jonathan Hodgson, Esq.	300	
James Moore, Esq.	200	
Messrs. Ames & Holden	150	
James Cooper, Esq.	150	
	10,800	
Total		$17,000

Remodelling East Wing for Class Rooms for Faculty of Applied Science, 1888.

John H. R. Molson, Esq.	$3,000
Sir Wm. C. Macdonald	3,000
Total	$6,000

6. Endowments for Apparatus.

The Local Committee of the British Association for the Advancement of Science, to found the **British Association Apparatus** Fund in the Faculties of Arts and Applied Science, in commemoration of the meeting of the Association in Montreal in 1884 .. $1,500

7. Subscriptions, Etc., for Apparatus.

A lady, for the purchase of Mining Models	$1,000
Thos. McDougall, Esq., for the same	25
J. Livesey, Esq., through Dr. Harrington, for the same	50
Geo. Stephen, Esq., for the same	50
Chas. Gibb, Esq., donation for Apparatus in Applied Science	50
The Local Committee for the reception (1881) of American Society of Civil Engineers for the purchase of Appliances for the department of Civil Engineering in Faculty of Applied Science	475
Capt. Adams, Chemical Apparatus	10
J. H. Burland, B.A.Sc., Chemical Apparatus	25
Sir Wm. C. Macdonald—	
For Surveying and Geodetic Apparatus in 1890	1,500
For new apparatus, etc., in the Mechanical Department, 1900	5,000
Total	$8,185

8. List of Subscribers and Donors to the Equipment of the New Engineering Buildings of McGill University to May, 1900.

Abbott, W.....Equipment
Adams, Capt. R. C.....
Mining Photographs
American Steam Gauge Co. (Boston) ..... Indicator
Archbald, H. .....Books
Ashton Valve Co. (Boston).....
Sectional Valve
Aurora Metal Co.....Specimens
Bell Telephone Co.....
Telephone Apparatus
Bertram & Sons, J. (Dundas)..
24 in. Planer
Bethlehem Iron Co....Specimens
Birch & Co., J. (England).....
Hydraulic Tubes
Birks, Henry ..... Clock
Bishop, George .....Equipment
Blackwell, Kennet....:Equipment
Blake Mnfg. Co., The George F.
Blue Prints of Pump
Blake Pump Co., The Geo. (New York & Boston).....Pump
Bluenose Mining Co.....Ore
Bremner, A. $50
Brockhaus, Herr F. A.....Books
Brodie & Harvey. $50
Bremner, Mond & Co.....Ore
Brush, G. .....Boiler
Cameron, General...Rotary Drill
Campbell Tile Co. (England), per Jordan & Locker.....
Equipment
Campbell, Kenneth. $50
Canada Switch Co.....Castings
Canadian General Electric Co. (Toronto), per F. Nicholls.....
Equipment
Canada General Electric Co. ...
Electric Drill, Edison Generator, Dynamo, Motor
Canada Rand Drill Co.Rock Drill
Carnegie Steel Co.....Specimens
Carsley, S.. .....$100
Carus-Wilson, Prof. C. A.....
Equipment
Cary, A. A.....
Photographs of Boilers
Chadwick, F.. .....Truss Models
Chanteloup, E. $50
Claxton, T. J...Timber Beams of large Scantling for Testing Laboratory
Costigan, J. .....Equipment
Cowen, Amos..Samples of Bricks
Cowper, P. H. .....
Model of Steam Engine
Craig, Messrs. J. & M. (Kilmarnock, Scotland)...Sanitary Sections (full size) and models
Crocker-Wheeler Electric Motor Co., The (New York)....Motor, Armature, Prints
Crosby Steam Gauge and Valve Co., The (Boston)..Gauge and Valve, Indicator and Valves
Cumberland Ry. & Coal Co..Ore
Darling, Brown & Sharpe (Providence,. R.I.).....6 in Rule
Date, John .....Equipment
Dawson, W. B.....Specimens
Dolworth Mining Co...5 tons ore
Dominion Coal Co..Miners' Tools
Dominion Wire Manfg. Co., per F. Fairman .....Shaper
Douglas, James.....Ore
Drummond, Hon. G. A.....Prism
Drummond, G. E.....Ore
Drysdale, D. .....Tools
Drysdale, W. .....Tools
Earle, S. R.....Air Injector
Edison General Electric Co.....
Two 450 light dynamos, Brake Shoe and Disc
Egleston, Dr. (New York).....
Framed Photograph of the Moon, Books, Photos, etc.
Electric Welding Company, (Boston) ..... Equipment
"Engineering Magazine" (New York City).Mining Illustrations and Photographs
Eureka Tempered Copper Co....
Equipment
Eustis Mining Co.....12 tons ore
Ewan, A. $100
Felton & Gilleaume.....
Samples of Cable Wire, etc.
Forsyth, R.....Equipment
Frothingham & Workman..Tools
Furlong, G. W., B.A.Sc.....
Specimens of Pine and Wood bored by Teredos
Gardner & Son, R. W.....
16 in Lathe
Gardner, R. .....Equipment
Garth & Co.....$500
Garth, Henry .....Equipment
Government of New South Wales
Collection of Australian Timbers
Government of Queensland, Australia.Collection of Queensland Timbers

Gower, W. E.....
Graham, H. $100
Grier, G. A.....Equipment
Guggenheim Smelting Co.....
Specimens
Gurney & Co., E. & C.....$604
Hadfield, Messrs. (Sheffield).....
Equipment
Hamilton Bridge Works Co.....
A Model of the Stoney Creek Arch
Hamilton Powder Co..Electrical Blasting Machine, and appliances, etc., for blasting.
Hearn & Harrison, per L. Harrison.....Barometer & Clock
Hersey, R. $1200
Hodgson, Jonathan $200
Holden, A. .....Equipment
Hosoki, Dr., of Tokio, Japan.....
Collection of Japanese Wood
Hoyt Metal Co.....Specimens
Hughes & Stephenson.Equipment
Hutton, W. H.....Equipment
Illinois Steel Co.....Photos, etc.
Ingersoll Rock Drill Co. .....
Rock Drill
Irwin & Hopper.....Equiment
Ives, H. R.....Cupola
Joyce, Alfred $50
Jordan & Locker.....Equipment
Kennedy, John .....Equipment
Kennedy, W. & Sons .....
American Turbine
Kennedy, W. (Owen Sound)....
Pump
Kerr, R. & W.....Tools
King & Son, Warden.....$534
Laughlin-Hough Drawing Table Co. ..... Drawing Tables
Lachine Rapids Co.....
Electrical apparatus and power
Laurie & Bro., J.....
Compound Engine
Lawson, A. J.....Equipment
Lehigh Zinc & Iron Co..Franklin Furnace, N. J., Mining Specimens and Photographs.
Lindsay & Co., C. F...Equipment
Lovell & Son, John.....Books
Lyster, A. G.....Drawings and Sketches of London and Liverpool Docks.
Macpherson, A. .....Tools
Mason, Dr. .....Equipment
Maxwell & Co., E. J...Equipment
McCarthy, D. & J. (Sorel)...$300
McDougall, Mrs. J.....$4000
McLachlin Bros. (Arnprior).....
Timber
McLaren, D. $100
McLaughlin Bros. .....Timber
McNally & Co., W.....$100
McPherson Sand Box Co. (Troy, N.Y.) .....Model of Sand Box
Midvale Steel Co.....Specimens
Miller Bros. & Sons.....Elevator
Mitchell, P.....Equipment ($300)
Mitchell & Co., R.....Equipment
Naismith, P. L., B.A.Sc.....
Specimens
Nalder Bros. & Co. (England)....
Standard Cell
National Electric Mfg. Co.....100 volt Transformer, Transformers
National Lead Co.....Specimens
Nicholson, Peter $100
Norton, A. O., Boston, Mass.Two Norton Bull-bearing Lifting-jacks.
Norton Emery Wheel Co. (Worcester, U.S.) .....Equipment
Notman, Wm. .....Photographs
Ohio Brass Co.....Fittings
Ogilvie, W. $500
Ontario Graphite Co.....
Graphite Rock
Packard Elec. Co...Transformers
Palmer, A. .....Equipment
Parker, M. .....Equipment
Paton, H. .....Equipment
Peckham Motor Truck and Wheel Co. (Kingston, N.Y.)....
Model of Motor Truck
Pelton Water Wheel Co. (New York) .....Two Motors
Pennsylvania Railroad Co.....
Working Drawings of Locomotives (32)
Perrin & Co., W. R. .....
Press and force pump
Phelps Engine Co., per A. R. Williams & Co., Dake Steam Engine. 4 Horse Power Engine
Pillow, J. A.....$250
Pittsburgh Reduction Co.....
Specimens
Pratt & Whitney (Hartford, Conn.).Epicycloidal Gear Model
Prowse, G. R.....Equipment
Queensland Government, per Sir Thos. McIlwraith..Collection of Timbers.
Radiator Co. (Toronto).....$500
Ramsay & Son, A.....$100
Rathbun, E. W.....Samples of Fire-proof Construction ($112)
Reddaway & Co., F.....
Belt (value $50)
Redpath, F. R.....Equipment
Redpath, Mrs. $100
Reed, G. W.....$100
Reford, R. $1000
Reid, R. .....Equipment
Reid, R. G.....$1000
Renouf, E. M.....Books

Rhode Island Locomotive Works
Photos of Locomotives
Rife's Hydraulic Engine Mfg. Co. (Roanoke, Va., U.S.A.).....
Hydraulic Ram
Robb & Armstrong .....
80 H.P. High Speed Engine
Robertson, J. .....Equipment
Rogers, Professor (Waterville, Maine) ..... Equipment
Ross, Jas. $500
Rodden, W. .....Equipment
Royal Electric Co.....Motors, Dynamos, Transformers, Coils, Condensers
Rutherford, W. .....Equipment
Sadler, G. (Robin & Sadler).....
Belting ($400)
Seeley, John .....Insulators
Schaeffer & Budenbery (Brooklyn, N.Y.).....Double Indicator
Scholes, F. $100
Scovill Mfg. Co.....Equipment
Sharp, Stewart & Co. (Manchester, Eng.) .....Equipment
Shearer, James $200
Sheppard, Chas. $200
Siemens Bros. (London, Eng.)...
Cable Samples
Smith ,C. B. .....
Framed Photos of Bridges (2)
Smith, R. .....Equipment
Spence, J. P., C.E...Specifications and Drawings showing construction of Sault Ste. Marie Canal Locks.
Smith, R. Guilford.....Books
Stanley Elect. Co.....Wattmeter
Steel Co. of Scotland, The.....
Samples of Cable Wire, etc.
St. George, P. W.....Models
Stirling Co., The...Sectional Blue Prints of Boilers
Sturtevant Co., The B. F. (Boston) ..... Blowers
Swan Lamp Mfg. Co.....Lamps
Taylor, A. T.....$300
Tees & Co. .....Equipment
Thomas, R. & Son.....Insulators
Thomson-Houston Co. (Boston)..
Incandescent dynamos
Twyford & Co.....Equipment
Vail, Stephen.....Piece of first Telegraph Wire Used
Walker & Co., James.....Tools
Wanklyn, F. L.....Equipment
Ward, Hon. J. K.....$50
Warrington Wire Co. .....
Cable Samples
Weston Elect. Instr. Co.....
Ammeters, &c.
Wetherill Separating Co.....
Ore samples
Whittier Machine Co. (Boston)..
Electric Elevator
Wiley & Sons, John (New York)
Books
Yale & Towne Mfg. Co. (Stamford, Conn.) .....Equipment
Yates & Thom .....
Blue Prints of Machinery

The above representing a total of about $80,000.

9. Faculty of Applied Science Library Endowment, 1893.

Hugh Paton	$ 25
A. Joyce..	25
R. Gardner	50
H. Garth	100
Hughes & Stephenson	100
R. Mitchell..	300
Forward..	$600
W. Rodden..	25
M. Parker	25
Robin & Sadler	50
J. Robertson, Esq...	50
Mrs. John McDougall (1895)..	20
Total..	$770

V. Endowments and Subscriptions in Aid of the Faculty of Medicine.

1. Leanchoil Endowment, 1884.

Lord Strathcona and Mount Royal $50,000

2. Campbell Memorial Endowment, 1884.

Established to commemorate the service rendered to the Faculty during 40 years by the late Dean, George W. Campbell, M.D., LL.D.

Mrs. G. W. Campbell. .. ..$	2000
H. A. Allan, Esq.	1500
Lord Strathcona and Mount Royal	1500
Lord Mount Stephen..	1000
R. B. Angus, Esq...	1000
Hon. Geo. A. Drummond ..	1000
Alex. Murray, Esq.	1000
Robert Moat, Esq.	1000
Sir W. C. Macdonald	1000
A Friend	1000
Duncan McIntyre, Esq... ..	1000
A. F. Gault, Esq.	1000
M. H. Gault, Esq.	1000
G. W. Stephens, Esq...	1000
James Benning, Esq..	1000
R. P. Howard, M.D.	1000
G. B. & J. H. Burland, Esqs.	1000
Miss Elizabeth C. Benny ..	1000
J. C. Wilson, Esq...	1000
Mrs. John Redpath	1000
Hon. John Hamilton	1000
Miss Orkney	1000
Hugh Mackay, Esq.	1000
Hector Mackenzie, Esq... ..	1000
Thomas Workman, Esq. ..	1000
Hugh McLennan, Esq.	1000
O. S. Wood, Esq.	1000
Frank Buller, M.D.	500
James Burnett, Esq.	500
Andrew Robertson, Esq.. ..	500
Robert Mackay, Esq.	500
John Hope, Esq.	500
Alex. Urquhart, Esq...	500
R. A. Smith, Esq.	500
George Hague, Esq.	500
J. K. Ward, Esq.	500
Warden King, Esq.	500
John Stirling, Esq.	500
John Rankin ,Esq.	500
Robert Reford, Esq.	500
Messrs. Cantlie, Ewan & Co.	500
Messrs. J. & W. Ogilvie ..	500
Randolph Hersey, Esq.	500
John A. Pillow, Esq.	500
S. Carsley, Esq.	500
D. C. MacCallum, M.D... ..	500
Messrs. S. Greenshields, Son & Co.	500
Forward .. ..$	39,000

Forward .. ..$	39,000
Jonathan Hodgson, Esq.. ..	500
George Ross, M.D.	500
T. G. Roddick, M.D.	500
Wm. Gardner, M.D.	500
Messrs. Cochrane, Cassils & Co.	500
Sir Joseph Hickson	500
Allan Gilmour, Esq., Ottawa	500
R. W. Shepherd, Esq.	500
G. E. Fenwick, M.D.	300
Miles Williams, Esq.	300
G. P. Girdwood, M.D.	250
Charles F. Smithers, Esq. ..	250
John Kerry, Esq.	250
A. Baumgarten, Esq...	250
R. W. Elmenhorst, Esq... ..	250
W. F. Lewis, Esq.	250
George Armstrong, Esq. ..	250
J. M. Douglas, Esq.	250
Messrs. H. Lyman Sons & Co.	250
F. J. Shepherd, M.D.	250
Duncan McEachran, Esq., F.R.C.V.S.	200
Benj. Dawson, Esq.	200
R. Wolff, Esq.	150
James Stuart, M.D.	150
A. T. Paterson, Esq.	100
H. W. Thornton, M.D. (New Richmond, Q.)	100
C. B. Harvey, M.D. (Yale, B.C.)	100
D. Cluness, M.D. (Nanaimo, B.C.)	100
W. Kinlock, Esq.	100
Hua, Richardson & Co.	100
Mrs. Cuthbert (N. Richmond, Q.)	100
J. M. Drake, M.D.	100
Hugh Patton, Esq.	100
R. T. Godfrey, M. D.	100
T. A. Rodger, M.D.	100
W. A. Dyer, Esq...	100
Geo. W. Wood, M.D. (Faribault, Minn.)	100
A. A. Browne, M.D.	100
Geo. Wilkins, M.D.	100
R. L. MacDonnell, M.D. ..	100
Forward .. ..$	48,400

Forward	$48,400
Jos. Workman, M.D. (Toronto)	50
Henry Lunam, B.A., M.D. (Campbellton, N.B.)	50
Hon. Sir A. T. Galt	50
R. J. Alloway, M.D.	30
R. J. B. Howard, M.D.	25
Louis T. Marceau, M.D. (Napierville, Q.)	25
Griffith Evans, M.D. (Vet. Dept. Army)	26
J. J. Farley, M.D. (Belleville)	25
Henry R. Gray, Esq.	25
J. E. Brouse, M.D. (Prescott)	20
R. N. Rinfret (Quebec)	20
Robert Howard, M.D. (St. Johns)	20
Drs. J. & D. McIntosh Vankleek Hill)	20
J. H. McBean, M.D.	15
J. C. Rattray, M.D. (Cobden, O.)	10
E. H. Howard, M.D. (Lachine)	10
Forward	$48,821

Forward	$48,821
J. W. Oliver, M.D. (Clifton, O.)	10
D. A. McDougall, M.D. (Ottawa, O.)	10
A. Poussette, M.D. (Sarnia, O.)	10
A. Ruttan, M.D. (Napanee, O.)	10
James Gunn, M.D. (Dunham, O.)	10
J. McDiarmid, M.D. (Hensall, O.)	5
W. J. Derby, M.D. (Rockland, O.)	5
J. Gillies, M.D. (Teeswater, O.)	5
J. B. Benson, M.D. (Chatham, N.B.)	5
L. A. Fortier, M.D. (St. David, Q.)	5
J. A. McArthur, M.D. (Fort Elgin, O.)	5
John Campbell, M.D. (Seaforth, O.)	5
Total	$48,906

3. Endowed Chairs, Donations, Etc.

LORD STRATHCONA AND MOUNT ROYAL CHAIR OF PATHOLOGY, endowed in 1893 by Lord Strathcona and Mount Royal with the sum of $50,000

LORD STRATHCONA AND MOUNT ROYAL ENDOWMENT FOR THE DEPARTMENT OF HYGIENE, endowed in 1893 by Lord Strathcona and Mount Royal with a sum of 50,000

MRS. MARY DOW BEQUEST—Bequest by the will of the late Mrs. Mary Dow for the Faculty of Medicine, 1893, $10,000 less Government Tax of 10 per cent. 9,000

JOHN H. R. MOLSON DONATION—in 1893, $25,000 for the purchase of land and $35,000 for additional building and equipment.. 60,000

WALTER DRAKE, ESQ., for benefit of Chair of Physiology, an annual donation of $500 given 1891 to 1897 3,500

DR. ROBERT CRAIK FUND—

Mrs. John McDougall, toward formation of above (1893-94) $1,000

Jane F. Learmont, bequest, do. do. (1894) 3,000

4,000

JOSEPH MORLEY DRAKE CHAIR OF PHYSIOLOGY, endowed in 1898 by Walter Drake, Esq., with the sum of 10,000

LADY STRATHCONA AND MOUNT ROYAL Donation for erection and equipment Additional Buildings (1899) 50,000

HON. MRS. HOWARD Donation for erection and equipment Additional Buildings (1899) 50,000

4. Medals and Scholarships.

In 1865 the "Holmes Gold Medal" was founded by the Faculty of Medicine as a memorial of the late Andrew Holmes, Esq., M.D., LL.D., late Dean of the Faculty of Medicine, to be given to the best student in the graduating class in Medicine, who should undergo a special examination in all the branches whether Primary or Final.

In 1878 the "Sutherland Gold Medal" was founded by Mrs. Sutherland of Montreal, in memory of her late husband, Prof. William Sutherland, M.D., for competition in the classes of Theoretical and Practical Chemistry in the Faculty of Medicine, together with creditable standing in the Primary Examinations.

THE DAVID MORRICE SCHOLARSHIP—in the subject of Institutes of Medicine, in the Faculty of Medicine—founded in 1881—value $100. (Terminated in 1883.)

5. Library, Museum and Apparatus.

For the Fittings of the Library and Museum of the Faculty of Medicine, 1872.

G. W. Campbell, A.M. M.D.	$1200	Forward	$2,000
W. E. Scott, M.D.	200	Robert Craik, M.D.	200
Wm. Wright, M.D.	200	Geo. E. Fenwick, M.D.	200
Robert P. Howard, M.D.	200	Joseph M. Drake, M.D.	200
Duncan C. MacCallum, M.D.	200	George Ross, M.A., M.D.	50
Forward	$2,000	Total	$2,650

The Professors and Lecturers in the Summer Sessions of the Faculty of Medicine..... Donation to Apparatus, Museum Library, etc., of the Medical Faculty, 1887, $1,182; 1888, $1.023. $2,205

For Physiological Laboratory of Faculty of Medicine, 1879.

Dr. Campbell	$100	Forward	$700
Dr. Howard	100	Dr. Ross	50
Dr. Craik	100	Dr. Roddick	50
Dr. MacCallum	100	Dr. Buller	50
Dr. Drake	100	Dr. Gardner	50
Dr. Godfrey	100	Dr. Osler	50
Dr. McEachran, F.R.C.V.S.	100		
Forward	$700	Total	$950

Cameron Obstetric Collections.

Dr. J. C. Cameron $10,000

6. Miscellaneous.

Anonymous Donor toward Expenses of Pathology for Session 1892-93 ..... $500

Contributors Towards Salary of Research Fellow in the Department of Pathology, 1900.

James Ross, Esq.	$2,500
R. B. Angus, Esq.	2,500
Total	$5,000

VI. Endowments and Subscriptions for the Faculty of Law

1. Endowed Chairs, Etc.

THE GALE CHAIR, in the Faculty of Law, endowed in 1884 by the late Mrs. Andrew Stuart (*née* Agnes Logan Gale), of Montreal, in memory of her father, the late Hon. Mr. Justice Gale.—$25,000.

THE MACDONALD FACULTY OF LAW ENDOWMENT, founded by Sir Wm. C. Macdonald, in 1890—$150,000. Supplemented in 1897 by $50,000. Total $200,000.

SIR WM. C. MACDONALD, remodelling part of East Wing in 1895 for Class Rooms, Lecture Rooms, etc., for Law Faculty.

2. Medal.

In 1865 the "Elizabeth Torrance Gold Medal," was founded and endowed by John Torrance, Esq., of St. Antoine Hall, Montreal, in memory of the late Mrs. John Torrance, for the best student in the graduating class in Law, and more especially for the highest proficiency in Roman Law.

VII. Graduates' Funds.

1. The Fund for Endowment of the Library.

The Graduates' Society of the University, in 1876, passed the following Resolution :—

Resolved :—"That the members and graduates be invited to subscribe to a fund for the endowment of the Libraries of the University; said fund to be invested and the proceeds applied under the supervision of the Council of the Society in annual additions to the Libraries; an equitable division of said proceeds to be made by the Council between the University Library and those of the Professional Faculties."

In terms thereof subscriptions have been paid in to the Graduates' Society, amounting in all to $3,120; the interest on which is annually expended in the purchase of books for the several libraries, under the direction of a special committee appointed for that purpose.

2. The Dawson Fellowship Foundation.

The Graduates' Society of the University, in 1880, and in commemoration of the completion by Dr. Dawson of his twenty-fifth year as Principal, resolved to raise, with the assistance of their friends, a fund towards the Endowment of the Fellowship under the above name.

Details of the scheme can be had from the Treasurer, Francis Topp, B.A., B.C.L. The following subscriptions have been announced to date, Jan. 1st, 1901. They are payable in one sum, in instalments, without interest or with interest till payment of capital as subscribers have elected.

Alphabetically arranged.

Abbott, H., B.C.L.	$ 60
Archibald, H., B.A.Sc.	20
Bethune, M. B., M.A., B.C.L.	50
Carter, C. B., B.C.L.	100
Cruikshank, W. G., B.C.L.	100
Dawson, W. B., M.A., Ma.E.	50
Dougall, J. R., M.A.	250
Gibb, C., B.A.	100
Hall, Rev. Wm., M.A.	100
Hall, J. S., jun., B.A., B.C.L.	100
Harrington, B. J., B.A., Ph.D.	50
Hutchinson, M., B.C.L.	400
Kirby, J., LL.D., D.C.L.	50
Krans, Rev. E. H., M.A., LL.D.	100
Leet, S. P., B.C.L.	100
Lighthall, W. D., M.A., B.C.L.	100
Forward	$1,730
Lyman, H. H., M.A.	100
Lyman, A. C., M.A., B.C.L.	50
McCormick, D., B.C.L.	100
McGibbon, R. D., B.A., B.C.L.	100
McGoun, A., jun., M.A., B.C.L.	50
McLennan, J. S., B.A.	100
Ramsay, R. A., M.A., B.C.L.	50
Spencer, J. W., B.A.Sc., Ph.D.	50
Stephen, C. H., B.C.L.	100
Stewart, D. A., B.A.Sc.	20
Stewart, J., M.D.	60
Tait, M. M., B.C.L.	100
Taylor, A. D., B.A., B.C.L.	100
Trenholme, N. W., M.A., D.C.L.	40
Total to date	$3,110

McGill University.

SESSION 1900-1901.

DEGREE AND SESSIONAL EXAMINATIONS.

PASS LISTS.

HONOURS, PRIZES, AND STANDING.

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McGill University.

DEGREE AND SESSIONAL EXAMINATIONS.

SESSION 1900-1901.

Faculty of Law.

THIRD YEAR (GRADUATING CLASS.)

HONOURS.

(In order of merit. Students of equal standing are bracketed together.)

PLACE, E. G., B.A.—First Rank Honours, Elizabeth Torrance Gold Medal, and Prize of $40.

CAMPBELL, G. A., B.A.—First Rank Honours and Prize of $40.

MCMICHAEL, R. C.—First Rank Honours, and Prize.

THOMPSON, J. R., B.A.—First Rank Honours, and Prize.

ROWAT, D. M., B.A.—First Rank Honours.

DOAK, A. E.—First Rank Honours.

MCMASTER, A. R., B.A.—First Rank Honours.

PASSED FOR THE DEGREE OF B.C.L.

(In order of merit).

Place, E. G., B.A.
Campbell, G. A., B.A.
McMichael, R. C.
Thompson, J. R., B.A.
Rowat, D. M., B.A.
Doak, A. E.
McMaster, A. R., B.A.
Holden, A. R., B.A., B.Sc.
Moffat, D. S., B.A.
Mann, J. A.
Skinner, W. M.
Mitchell, W. G.
Kay, W. F.
Westover, E. W.
Springle, H. A.
Beique, F.
Barlow, J. C.

STANDING IN THE SEVERAL SUBJECTS.

(Subjects alphabetically arranged).

AGENCY AND PARTNERSHIP.

Place, Campbell, Thompson, McMichael; Mitchell and Doak, equal; Holden, McMaster, Rowat, Moffat, Kay, Springle; Skinner and Mann and Barlow, equal; Westover, Beique.

COMMERCIAL LAW.

Place, Campbell, McMichael; Doak and McMaster and Moffat, equal; Rowat, Holden, Mann, Thompson, Skinner, Kay, Beique, Mitchell, Springle, Westover, Barlow.

CONSTITUTIONAL LAW.

Place, Campbell; Doak and Holden and Rowat and Westover, equal; Mann, Thompson; Moffat and Kay, equal; McMaster and McMichael, equal; Springle, Mitchell, Beique, Barlow, Skinner.

CRIMINAL LAW.

Campbell, Place, Thompson; Doak and McMichael and Moffat, equal; Westover; McMaster and Mitchell, equal; Mann, Rowat; Holden and Skinner, equal; Springle, Kay, Beique, Barlow.

INTERNATIONAL LAW.

Place, McMaster, McMichael, Doak, Campbell, Thompson, Rowat, Mann, Beique, Moffat, Springle, Kay, Holden; Skinner and Westover, equal; Mitchell, Barlow.

MARRIAGE COVENANTS, PRESCRIPTION, ETC.

Place, Campbell, McMaster, Thompson, Holden, Doak, Skinner, Mann, McMichael, Westover, Beique; Moffat and Barlow, equal; Kay, Rowat, Mitchell, Springle.

OBLIGATIONS.

Rowat; McMichael and Place, equal; Thompson; Beique and Doak and Mann, equal; Campbell, Holden, Springle, McMaster; Barlow and Moffat, equal; Mitchell; Skinner and Westover, equal; Kay.

PROCEDURE.

Place, McMichael, Thompson; Holden and Rowat, equal; Moffat; Campbell and Mann, equal; McMaster and Skinner, equal; Doak and Westover, equal; Springle, Mitchell, Kay, Beique, Barlow.

REAL PROPERTY LAW.

Campbell and Rowat, equal; Place, Mann, McMichael; Thompson and Holden and Moffat, equal; McMaster; Beique and Skinner, equal; Barlow and Doak, equal; Mitchell, Springle, Kay, Westover.

ROMAN LAW.

Place, Thompson, Rowat, Campbell, McMichael, Doak, Moffat, Holden, McMaster, Barlow, Kay, Mann, Mitchell, Springle, Skinner, Westover, Beique.

SUCCESSIONS, GIFTS AND SUBSTITUTIONS.

Place; Campbell and Doak, equal; McMichael; McMaster and Rowat, equal; Thompson, Holden, Mann, Mitchell, Moffat, Skinner, Westover, Springle, Barlow, Kay, Beique.

SECOND YEAR.

HONOURS.

(In order of merit).

WAINWRIGHT, ARNOLD, B. A.-First Rank General Standing and Prize of $50.

ASTLE, THOMAS F.—First Rank General Standing and Prize of $25.

COTTON, CHARLES M., B.A.—First Rank General Standing.

PASSED THE SESSIONAL EXAMINATION.

(In order of merit).

Wainwright, Astle, Cotton, Couper, Duff, Aylmer, Bonin, Draper, Staveley; Ogden*.

STANDING IN THE SEVERAL SUBJECTS.

(Subjects alphabetically arranged).

CIVIL PROCEDURE.

Wainwright, Astle, Couper, Cotton, Duff, Aylmer, Staveley, Draper.

COMMERCIAL LAW.

Wainwright; Aylmer and Cotton and Duff, equal; Astle ,Couper, Staveley, Bonin, Draper.

CORPORATIONS.

Wainwright, Cotton, Astle, Couper, Duff, Aylmer, Bonin, Staveley and Draper, equal.

CRIMINAL LAW.

Astle, Wainwright, Couper, Cotton, Duff; Aylmer and Draper, equal; Staveley.

INTERNATIONAL LAW.

Wainwright. Astle. Cotton, Aylmer, Couper, Duff, Bonin, Staveley, Draper.

PRESCRIPTION, LEASE AND HIRE, MUNICIPAL LAW.

Cotton, Wainwright, Astle, Duff, Couper, Aylmer, Staveley, Bonin, Draper.

REAL PROPERTY LAW.

Wainwright, Cotton, Astle, Couper, Duff, Draper, Aylmer, Staveley, Bonin.

SUCCESSIONS.

Wainwright, Astle, Cotton, Couper, Duff, Aylmer, Bonin, Draper, Staveley.

FIRST YEAR.

HONOURS.

(In order of merit).

BLAYLOCK, H. W., B.A.—First Rank General Standing and Scholarship of $100.

GOSSELIN, LOUIS, B.A.—First Rank General Standing and Scholarship of $50.

MADORE, LOUIS, B.A.—First Rank General Standing and Scholarship of $50.

**Examined at local centre and therefore not ranked, but passed with great credit.*

PASSED THE SESSIONAL EXAMINATIONS.

(In order of merit.)

Blaylock; Gosselin and Madore, equal; McKinnon, Bergeron, Rugg, Weinfield, Butler, Casgrain, Tansey, Robertson, Théberge, Orr.

STANDING IN THE SEVERAL SUBJECTS.

(Subjects alphabetically arranged).

CIVIL PROCEDURE.

Gosselin, Weinfield; Blaylock and Rugg, equal; Bergeron, McKinnon; Butler and Casgrain, equal; Madore, Robertson, Théberge, Tansey, Orr.

CONSTITUTIONAL LAW.

Blaylock, Madore, Butler, McKinnon, Bergeron, Weinfield, Robertson; Casgrain and Gosselin, equal; Théberge, Rugg, Tansey, Orr.

LEGAL HISTORY.

Tansey, Blaylock, McKinnon, Madore, Gosselin, Bergeron, Rugg, Butler, Weinfield, Orr, Casgrain.

OBLIGATIONS.

Blaylock and Gosselin, equal; McKinnon, Madore, Butler, Robertson, Casgrain, Rugg; Bergeron and Tansey, equal; Weinfield, Orr, Théberge.

PERSONS.

Gosselin; Blaylock and Casgrain, equal; Rugg; Madore and Robertson, equal; Bergeron, Weinfield, Tansey, Butler, McKinnon, Théberge, Orr.

REAL RIGHTS.

Blaylock and Madore, equal; Weinfield; Gosselin and Rugg, equal; Robertson, Bergeron; Casgrain and McKinnon, equal; Butler, Tansey, Orr, Théberge.

ROMAN LAW.

Blaylock, Gosselin, Madore, McKinnon; Bergeron and Butler, equal; Rugg, Tansey, Casgrain, Théberge, Weinfield, Orr, Robertson.

Faculty of Arts.

PASSED FOR THE DEGREE OF B. A.

IN HONOURS.

(In Alphabetical Order.)

First Rank. —Barrington, F. H.
Bennett, C. W.
Copeman, Jos. H.
McNaughton, W. G.
Mitchell, Sydney.
Page, Harriet A.
Scrimger, F. A. C.
Tees, Fred. J.
Williams, H. S.

Second Rank.—Chipman, W. F.
Flint, Mary
McLeod, Angus B.

ORDINARY B.A.

(In order of merit)

Class I.—Dickson, Norval (Special Certificate).
Harper, Robt. J. (Special Certificate).
Cotton, Wm. U. (Special Certificate).
Smith, E, M. (Special Certificate).
McDonald, John ‡
Lochead, A. W. ‡

Class II.—Fuller, Geo. D.
Hickson, Robt. D.
Moffatt, Chs. F.
Molson, Percival
Charters, H.

Class III.—Scott, G. W.
Huxtable, G. M.
Lindsay, J. E.
Viner, Norman
Stephens, L. de K.

‡ *Special Course.*

Jeakins, Chs. E.
Mowatt, Joseph A.
McMurtry, S. O.

Millar, W. K. (Special Examination).
Reford, Louis (Special Examination).

TUDENTS REGISTERED IN THE FACULTY OF APPLIED SCIENCE PROCEEDING TO THE DEGREE OF B. A. IN COURSE.

McMurtry, G. O.
Scott, H. E.

STUDENTS REGISTERED IN THE FACULTY OF MEDICINE PROCEEDING TO THE DEGREE OF B. A. IN COURSE.

Horsfall, F. L.

STUDENTS IN ARTS REGISTERED IN THE MEDICAL FACULTY WHO WILL BE QUALIFIED TO OBTAIN THE DEGREE OF B. A. IN JUNE, 1901, ON COMPLETING THEIR MEDICAL YEAR.

(In alphabetical order)

McEwan, J. R.
McPherson, T.
Mitchell, I.
Strong, N. W.

ADMITTED TO THE DEGREE OF B. SC.

Steeves, Herbert Bliss

BACHELORS OF ARTS PROCEEDING TO THE DEGREE OF M. A. IN COURSE

Watson, Rosalind, B. A. (In absentia).
Seifert, Ethel M., B. A.
Brooks, Harriet, B. A.
McClung, R. K., B. A.

BACHELORS OF ARTS PROCEEDING TO THE DEGREE OF M. SC. IN COURSE

Newson, Wm. V.

BACHELOR OF ARTS ADMITTED "AD EUNDEM GRADUM."

Fyshe, James C., B.A. (Harvard).

PASSED THE INTERMEDIATE EXAMINATION.

(1)—FOR COURSE LEADING TO B.A.

(In order of merit. Students of equal standing are bracketed together).

Class I.—Bovey, F. H. W.
{ Lomer, G. R.
{ Parkin, Maude
Lundie, E. H.
Wisdom, K. F.
Belyea, M. E.
Harris, A. D.

Class II.—East, E. M.
Healy, W. J.
McMorran, T. T.
Wales, J. G.
Davidson, M. B.
Hadrill, M. F.
Seaman, J. C.
Angus, J. M.
Couture, G. C.
Joseph, H. P.
Lunny, Ry.
Fee, J. E.
McKay, E. B.
Parkins, E. R.
Class III.—Hanington, J. W.
Pownall, E. W.
Troop, G. W. H.
Pattison, A. M.
Cameron, D.
Dutaud, C.
Fripp, G. D. (*s*)
Johnson, W. (*s*)
May, W. H. (*s*)
Mowatt, E. E. (*s*)
Simister, W. (*s*)

(2)—FOR COURSE LEADING TO B.Sc.

Class II.—Gass, H.
McLeish, John
Dunlop, Alan (*s*)
McLeod, E. (*s*)

FOURTH YEAR (GRADUATING CLASS).

HONOURS.

(Students of equal standing are bracketed together.)

B.A. Honours in Mathematics and Natural Philosophy.

BARRINGTON, F. H.—First Rank Honours and Anne Molson Gold Medal.

B.A. Honours in Classics.

COPEMAN, J. H.—First Rank Honours.

B.A. Honours in Geology, Mineralogy and Palæontology.

MCNAUGHTON, W. G.—First Rank Honours and Logan Gold Medal.

B.A. Honours in Biology.

SCRIMGER, F. A. C.—First Rank Honours.

B.A. Honours in Mental and Moral Philosophy.

WILLIAMS, H. S.—First Rank Honours.
MCLEOD, ANGUS—Second Rank Honours.
FLINT, MARY—Second Rank Honours.
CHIPMAN, WARRICK F.—Second Rank Honours.

(*s*) *With Supplemental in one subject* (*arranged alphabetically*).

B.A. Honours in English Language, Literature and History.

MITCHELL, SYDNEY—First Rank Honours.
TEES, FRED. J.—First Rank Honours.

B.A. Honours in Modern Languages and History.

PAGE, HARRIET—First Rank Honours and Minto Gold Medal.
BENNETT, WINIFRED C.—First Rank Honours.

First Rank General Standing.

DICKSON, NORVAL—Hiram Mills Gold Medal and Special Certificate.
HARPER, ROBT. J.—Special Certificate.
COTTON, W. U.—Special Certificate.
SMITH, E. M.—Special Certificate.

Early English Text Society's Prize.

WOODLEY, E., B.A.

Neil Stewart Prize in Hebrew.

RICE, H. G., B.A.

THIRD YEAR.

HONOURS.

NOLAN, ANNIE W.—First Rank Honours in Mineralogy. Prize in Zoology.
DIXON, JENNIE D.—First Rank Honours in Mineralogy.
MUNN, W. C.—First Rank Honours and Prize in History.
IRVING, ELIZABETH—First Rank Honours in English Language and Literature.
MUNN, EMMA M.—First Rank Honours in English Language and Literature.
BICKERDIKE, M. C.—Second Rank Honours in Mental and Moral Philosophy.
ADAMS, C. E.—Second Rank Honours in History.
CLOGG, VIVIAN—Second Rank Honours in English Language and Literature.
WARRINER, EVA J.—Second Rank Honours in English Language and Literature.
CROWELL, S. C.—Prize in Mechanics; Prize for Latin.
REID, ALLAN S.—Prize in Hebrew.

SECOND YEAR.

HONOURS,

BOVEY, F. H. W. (Private Tuition and Abingdon School)—First Rank Honours and Prize in Mathematics; First Rank General Standing; Prize in Latin; Prize in Greek.
LUNDIE, E. H. (Girls' H. S., Montreal)—First Rank Honours and Prize in Mathematics; First Rank General Standing; Prize in Greek; Annie McIntosh Prize.
WISDOM, K. F.—(St. John's H. S., St. John, N.B.)—First Rank Honours and Prize in Mathematics; First Rank General Standing; Annie McIntosh Prize.
MCLEISH, JOHN (Private Tuition)—Second Rank Honours in Mathematics. Prize in Botany.

PARKIN, MAUDE E. (Bishop Strachan's School Toronto)—First Rank General Standing; Prize in German; Prize in French; Prize in Botany.

LOMER, G. R.—(Montreal H. S.)—First Rank General Standing; Prize in Logic.

BELYEA, MARION E. (St. John's H. S., St. John, N.B.)—First Rank General Standing; Prize in Logic.

HARRIS, ALAN D. (Private Tuition)—First Rank General Standing.

SEAMAN, JOHN C. (Montreal Dioc. Theo. Coll.)—Prize in Hebrew.

WALES, JULIA G. (Cookshire Academy)—Prize in English.

PASSED THE SESSIONAL EXAMINATION.

(1)—FOR COURSE LEADING TO B.A.

Class I.—Bovey; Lomer and Parkin, equal; Lundie, Wisdom, Belyea, Harris.

Class II.—East; Healy and McMorran and Wales, equal; Davidson and Hadrill and Seaman, equal; Angus and Couture, equal; Joseph, Lunny, Fee, McKay, Parkins.

Class III.—Hanington, Pownall, Troop, Pattison; Cameron and Dutaud, equal. Fripp (*s*), Johnson (*s*), May (*s*), Mowatt (*s*), Simister (*s*).

(2)—FOR COURSE LEADING TO B.SC.

Class II.—Gass, McLeish.
Dunlop (*s*), McLeod (*s*).

FIRST YEAR.

HONOURS.

SHELDON, E. W. (Barrie Collegiate Ins.)—First Rank Honours and Prize Mathematics; First Rank General Standing.

BELL, HERBERT (Prince of Wales Coll. Charlottetown, P.E.I.)—First Rank Honours and Prize in Mathematics; First Rank General Standing; Coster Memorial Prize.

SIMPSON, EDITH P. (McGill Normal School)—First Rank Honours in Mathematics; First Rank General Standing; Prize in French.

MCCALLY, M. KATHLEEN (St. Thomas Coll. Inst.)—First Rank Honours and Prize in Mathematics; Prize in German.

LATHE, FRANK E. (Huntingdon Academy)—Second Rank Honours in Mathematics: First Rank General Standing.

MCGOUGAN, ED. (Glencoe, H.S.)—Second Rank Honours in Mathematics; First Rank General Standing.

ROSE, HERBERT J. (Ottawa Coll. Inst.)—Second Rank Honours in Mathematics and First Rank General Standing.

ARCHIBALD, JOHN G. (Montreal H. S.)—First Rank General Standing; Prize in Greek; Prize in Latin; Prize in English.

(*s*) *With Supplemental Examination in one subject (arranged alphabetically).*

PASSED THE SESSIONAL EXAMINATION.

(1)—FOR COURSE LEADING TO B.A.

Sheldon, Rose; Archibald and Bell (H.) equal; Brown (W. G.), Simpson, Lathe,; McGougan and McKenzie (A. D. M.) equal; McCallum, McCally; Mackenzie (C. I.) and Molson and Wickware, equal; Hart and Papineau, equal; Campbell and Kydd and Shanks, equal; MacFarlane (C. M.); Draper and Freeze and Griffin and Gurd, equal; McDonald, Stewart (L. J.); Chandler and Gardner and Heuser, equal; Rubinowitz § and Macleod, equal; Craig Laursen §, Cox, Kimber.

Bell (R.) (*s*), Bouchard (*s*), DeBeck (*s*), Fenwick (*s*), French (*s*), Gray (*s*), Logan (*s*), McGee (*s*), Marshall (*s*), Mingie (*s*), Scriven (*s*), Stewart (J. U.) (*s*), Wilson (*s*).

(2)—FOR COURSE LEADING TO B.SC.

McCoy.

STANDING IN THE SEVERAL SUBJECTS.

(Subjects alphabetically arranged.)

FOURTH YEAR (GRADUATING CLASS.)

ART AND ARCHAEOLOGY.

Class I.—Harris. *Class II.*—Greenleese, Carson.

ASTRONOMY AND OPTICS.

Class I.—Dickson. *Class II.*—Smith, Viner, Huxtable. *Class III.*—Stephens, Mowatt, Brown (A. V.)

BOTANY.

Class I.—Scrimger, Fuller, McNaughton. *Class II.*—Craig.

CHEMISTRY.

Class I.—Moffatt, McMurtry (S. O.). *Class II.*—Scott (W. J.).

CONSTITUTIONAL LAW AND HISTORY.

Class I.—McDonald, Lochead.

ECONOMICS AND POLITICAL SCIENCE.

Class II.—Brodie, Horsfall.

ENGLISH LITERATURE.

Class I.—Harper, Cotton, Tees, Mitchell, Chipman, Smith. *Class II.*—McEwen, Lindsay, Charters; Hickson and Molson, equal: Jeakins. *Class III.*—Dickson, Stephens, White, McMurtry, Mount, Mowatt.

FRENCH.

Class I.—Page, Bennett, Dickson. *Class II.*—Williams, Huxtable, McEwen, Brodie, Strong, Stephens. *Class III.*—Fuller, McPherson, Viner.

(*s*) *With Supplemental Examination in one subject (arranged alphabetically).*

§ Vancouver College.

GERMAN.

Class I.—Page, Bennett *Class II.*—Mitchell (I. E.), Smith. *Class III.*—Huxtable.

GEOLOGY.

Class I.—McNaughton, Harper and Gratton, equal; Fuller and Scrimger, equal; Nolan, Barrington, Hickson. *Class II.*—Cotton, Molson, Lindsay, White, Jeakins, Scott (W. J.). *Class III.*—Brown, Mount.

GREEK.

Class I.—Dickson, Copeman.

HEBREW.

Class II.—Mowatt.

HISTORY.

Class I.—McDonald, Lochead. *Class III.*—Horsfall.

LATIN.

Class I.—Copeman, Dickson; Cotton and Harper, equal. *Class II.*—Hickson and Smith, equal; Lindsay, Viner, Barrington. *Class III.*—Moffatt, Brown, Jeakins, Molson, Huxtable; Fuller and Mowatt, equal; Stephens, McMurtry (S. O.).

MECHANICS.

Class I.—Scott (G. W.), Dickson, McPherson, Smith, Harper, Tees, Flint, Strong, McLeod, McMurtry (G. O.), Cotton. *Class II.*—Charters, Molson, Hickson; Boulter and Huxtable, equal. *Class III.*—McMurtry (S. O.); Moffatt and Fuller, equal; Viner, Lindsay, Scott (W. J.); Mitchell (I. E.) and Stephens, equal; Mowatt, White, Mitchell (S.).

MORAL PHILOSOPHY.

Class I.—Brown, Dickson; Lindsay and Williams, equal; Harper and Smith, equal; Lochead; McDonald and Molson, equal; Viner, Flint, Moffatt, Huxtable. *Class II.*—Chipman and Fuller, and Horsfall and Mount and Scott (W. J.), equal; Cotton, Hickson, McMurtry (G. O.), McMurtry (S. O.), McLeod, Jeakins; Boyd and White, equal; Mowatt; McKelvey and Stephens, equal. *Class III.*—Charters, Cragg, Morrow.

ZOOLOGY.

Class I.—Scrimger. *Class II.*—McMurtry (S. O.). *Class III.*—Moffatt.

ASTRONOMY AND OPTICS.

Class I.—Crowell.

THIRD YEAR.

BOTANY.

Class II.—Steeves, McLachlan.

CHEMISTRY.

Class I.—Nolan and Pruyn, equal. *Class II.*—Dixon and McDonald and McLachlan, equal; Walker.

CONSTITUTIONAL LAW AND HISTORY.

Class I.—Munn (W. C.). *Class II.*—Adams. *Class III.*—Clogg.

ECONOMICS AND POLITICAL SCIENCE.

Class I.—Munn (W. C.) and Pruyn, equal. *Class II.*—Adams and Jack and Smith, equal; Bickerdike and Blagrave and Carson and Cole and Ireland and Irving (E) and Irving (G.) and Millar and McDonald and Munn (E. M.) and Murphy and Plant, equal. *Class III.*—Ascah and Ogilvie and Parker, equal.

ENGLISH COMPOSITION.

Class I.—Plant, Smith, Jack; Crowell and Pruyn, equal. *Class II.*—Brodie, Harris, Crothers, Bickerdike; Ascah and Day, equal. *Class III.*—Irving (E.); Blagrave and Parker, equal; McLachlan, Cole, Carson, Walker, Ireland, Hitchcock, McDonald, Noyes, Reid, Murphy, Greenleese.

ENGLISH LANGUAGE.

Class II.—Clogg; Irving (E.) and Munn (E. M.) and Warriner, equal. *Class III.*—Hitchcock, Day.

FRENCH.

Class I.—Plant (prize). *Class III.*—Noyes, Parker, Crothers, Ireland.

GEOLOGY.

Class I.—Dixon, Nolan. *Class II.*—Brodie, Crothers, Steeves, Blagrave, Irving (G.). *Class III.*—Morrow.

GERMAN.

Class I.—Plant. *Class II.*—Hitchcock, Irving (E). *Class III.*—Greenleese.

GREEK.

Class II.—Reid.

HEBREW.

Class I.—Reid (prize).

HISTORY.

Class I.—Munn (W. C.), Harris. *Class II.*—McDonald, Pruyn, Cox, Cole, Jack, Adams, Smith. *Class III.*—Hitchcock.

LATIN.

Class I.—Crowell (prize). *Class II.*—Smith. *Class III.*—Day.

LOGIC AND METAPHYSICS.

Class I.—Crowell, Blagrave. *Class II.*—Bickerdike, Day, Carson; Irving (G.) and Walker, equal; Jack. *Class III.*—Warriner, Crothers, Ireland, Ascah.

MORAL PHILOSOPHY.

Class II.—Parker. *Class III.*—Stillman, Chancey, Sutcliffe.

MECHANICS.

Class I.—Crowell.

PHYSICS (EXPERIMENTAL).

Class I.—Harris; Cole and McLachlan, equal.

ZOOLOGY.

Class I.—Nolan (prize). *Class II.*—Walker, Dixon. *Class III.*—Steeves, Greenleese; Bickerdike.

SECOND YEAR.

BIOLOGY (ELEMENTARY).

Class I.—McMorran, Parkin (prize, Botany). *Class II.*—Healy, Fripp. *Class III.*—Dutand and Holman and Parkins, equal; Cameron, McKay, McEachren (Botany only).

BOTANY.

Class I.—McLeish (prize). *Class II.*—McDiarmid, Gass.

CHEMISTRY.

Class I.—Belyea and Gass, equal; Holman. *Class II.*—Harris and Lomer, equal; Davidson and Dunlop and Gnaedinger and McDougall and McLeish and McLeod and Parkins, equal. *Class III.*—Cameron and Dutaud and Fripp and Joseph and McDiarmid and May and Mowatt, equal; Hanington and Pattison and Simister and Sutherland, equal.

ENGLISH.

Class I.—Wales; Bovey and Lomer, equal; Parkin, Belyea, Couture, Wisdom, Lundie, Davidson, Cole.† *Class II.*—Joseph, Parkins, Hanington; East and Gass, equal; Harris and Healy, equal; McLeish and Seaman, equal; Hadrill, Lunny, Johnson, Lockhart,† McMorran, Angus, Fee, McKay, Simister. *Class III.*—Pattison, McDiarmid, May, McCutcheon, Holman; Dunlop and Gnaedinger, equal; Woodside, Troop, MacKenzie, Pownall, Mowatt and Cameron, equal; Fripp, Bridgette,† Dutaud, Mitchell.

FRENCH.

Class I.—Parkin (prize), Lundie, Wisdom; Cole† and Lomer, equal; East Joseph. *Class II.*—Belyea, McMorran; Angus and Lockhart,† equal; Hadrill and McDougall, equal; Simister, Lunny, Johnson, McLeish, Gass, McKay. *Class III.*—Fee, McLeod, Harris, Fripp, Dunlop.

GERMAN.

Class I.—Parkin (prize), Wisdom. *Class II.*—Wales, Couture, Belyea. *Class III.*—McLeish, Lunny, Gass.

GREEK.

Class I.—Bovey* (prize), Lundie (prize), Angus. *Class II.*—Hadrill, Seaman, Healy, McKay. *Class III.*—Davidson, Troop, Pownall.

HEBREW.

Class I.—Seaman (Prize), Davidson, Fee. *Class II.*—Mowatt, Woodside, Mitchell. *Class III.*—Rondeau, Pownall, May, Troop.

LATIN.

Class I.—Bovey (prize), Lundie, Lomer, Wisdom; Healy and Parkin. *Class II.*—Belyea, Seaman; Couture and Hanington, equal; McMorran; Hadrill and Joseph and Pownall, equal; Harris and Lunny, equal; Angus. *Class III.*—Troop; Wales and East; Fee, Gnaedinger, Johnson, Pattison, Dutaud, Cameron, Sutherland.

LOGIC.

Class I.—Lomer, Belyea, East; Healy and Wales and Wisdom, equal; Bovey and Fee, equal; Lundie, McKay, McMorran, Cole,† Harris. *Class II.*—Davidson and Hadrill, equal; Parkin; Howard and

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* *Distinction in Examination.*
† *Stanstead Wesleyan College.*

Joseph, equal; Angus and Couture and Lockhart,† equal; McDougall and Parkins, equal; Simister; McCutcheon and McEachren, equal; Gnaedinger and Pattison and Seaman, equal; Lunny. *Class III.*—Hanington, Troop; Cameron and MacKenzie, equal; Mowatt; Dutaud and Johnson and Pownall, equal; Fisher and May, equal; Bartlett aand Dunlop and Whiteside equal; Cleland.

MATHEMATICS.

(1). SPHERICAL TRIGONOMETRY AND ALGEBRA.

Class I.—Harris and Lunny equal; Angus. *Class II.*—East and Hadrill and Wales, equal; Couture and Cole,† equal. *Class III.*—McMorran and Pattison and Hanington, equal; Gnaedinger and Bridgette,† equal; Dunlop and Lockhart,† equal.

MATHEMATICS.

(2). CONIC SECTIONS AND SOLID GEOMETRY.

Class I.—Harris, Lunny. *Class II.*—Cole† and Wales and Couture, equal; Bridgette and East and Hadrill, equal. *Class III.*—Gnaedinger and Lockhart,† equal; Angus and Hanington and Pattison, equal.

MATHEMATICS.

(3). ADVANCED SECTION.

First Rank Honours.—Bovey, Lundie, Wisdom.
Second Rank Honours.—McLeish.

ZOOLOGY.

Class III.—McLeod.

FIRST YEAR.

ENGLISH AND HISTORY.

Class I.—Archibald (prize), Rose, Hart, Brown, Gardner; Gray and Simpson, equal; Lomer, Sheldon; Papineau and Mackenzie (C. I.), equal; Campbell, Macleod. *Class II.*—Freeze, Fenwick, Draper, Griffin, Wilson; Kydd and Lathe, equal; MacFarlane; Gurd and McGougan, equal; Bell (H.) and Chandler, equal; Macaulay, Holden, McCallum, Hitchcock,† DeBeck,§ McCally, McKenzie (A.D.M.). *Class III.*—Rubinowitz,§ McDonald, Kaye, Stewart (L. J.), Wickware, Bouchard, French, Mingie, Scriven, Robertson, Marshall, Macfarlane (G.), Craig, Thomson, Burpee,§ McGeer,§ McCoy, Carter,§ Young, LeMesurier, Findlay,† Molson, Logan, Shanks, Locke, Cox, Laursen,§ Jordan, Joughins, Kimber, Ross, Heuser, Wright.

FRENCH.

Class I.—Holden and Simpson (prize), equal; Mackenzie (C.I.). *Class II.*—Lomer and Rose, equal; Brown (W. G.), Lathe; Bouchard and Draper and Monk, equal; LeMesurier, McCallum, Papineau, Freeze; Hart and McCally and McDonald, equal. *Class III.*—Kydd and Molson, equal; Gardner, Shanks, Hitchcock,† Griffin; Robertson and Wilson, equal; Bell (H.) and Stewart (L. J.), equal; Fenwick; Logan and MacFarlane (G. M.), equal; Chandler, Sheldon, Campbell, Harvie, McGeer,§ French, Carter,§ Mingie, Gurd, Kimber, DeBeck,§ Craig, Smith,† McCoy, Findlay,† Heuser, Bonin.

† *Stanstead Wesleyan College.*
§ *Vancouver College.*

GERMAN.

Class I.—McCally (prize), Heuser. *Class II.*—Robertson, Fenwick, Gardner, Wickware. *Class III.*—Rubinowitz,§ Bell (R.), Laursen,§ Robinson,§ Shanks, Young, Webster, Cox, Kimber.

For B.Sc. and Beginners.

Class I.—Bouchard. *Class II.*—Craig. *Class III.*—Harvie, McCoy, Kaye.

GREEK.

Class I.—Archibald* (prize), Rose, Bell, Sheldon, Simpson, McCallum, Brown (W. G.), Hart and McKenzie (A. D. M.), equal. *Class II.*—Campbell, Laing and Mackenzie (C.I.), equal; McGougan, Marshall. *Class III.*—French, Stewart (J. U.) and Gray and Macleod, equal; Cross and Dickenson, equal.

LATIN.

Class I.—Archibald* (prize), Bell (H.), Rose, Simpson, Sheldon, Brown (W. G.), McKenzie (A. D. M.), Wickware. *Class II.*—McCallum, Campbell, Molson, Lathe, Shanks, Kydd, Hart, Laing, Papineau, Marshall, McDonald, McGougan, Holden, Lomer. *Class III.*—Logan, French, Bouchard, Gardner, Macleod, Stewart (L. J.), Craig, Dickenson, Scriven, Fenwick, Burpee,§ Chandler, Gurd, Stewart (J. U.), Kimber, Robertson, MacFarlane (C. M.), McGeer,§ Griffin, Rubinowitz,§ Heuser, Laursen,§ Bell (R.), Draper, Freeze, McCally, Young, Cox, Walker, Findlay,† Hitchcock.†

MATHEMATICS.

(1). GEOMETRY AND ARITHMETIC.

Class I.—Sheldon, Lathe, Bell (H.); Brown (W. G.) and McGougan and Shanks, equal; Archibald, DeBeck,§ McCallum, Lomer, McCally; Kydd and Papineau, equal; McKenzie (A. D. M.), and Molson and Wickware, equal; Laursen,§ Rose. *Class II.*—Gurd and McDonald and MacFarlane (C. M.), equal; Macaulay; Simpson and Rubinowitz,§ equal; Campbell and Stewart (J. U.) and Walker, equal; Heuser and Stewart (L. J.), equal; Chandler, Draper, Harvie, Cox, Griffin, Freeze; Laing and Gardner and Mackenzie (C. I.) and Smith† and Robertson, equal; Burpee§; Logan and Craig, equal. *Class III.*—Hart; Wilson and Hitchcock,† equal; Mingie, McCoy; Fenwick and Jordan and Findlay,† equal; Bell (R.); Gray and McPherson and McGeer,§ equal; Scriven, Kimber; Marshall and Bouchard, equal; French, Cross; LeMesurier and Carter, equal; Webster, Gaunt; Monk and Robinson,§ equal; Macleod.

MATHEMATICS.

(2). TRIGONOMETRY AND ALGEBRA.

Class I.—Sheldon, McCally, McGougan; Lathe and Rose and Simpson, equal; Stewart (J. U.), Molson, Macaulay, Archibald; Bell (H.) and Brown (W. G.) and Wickware, equal. *Class II.*—McCallum and MacFarlane (C. M.), equal; Gurd, Lomer, Kydd; McKenzie (A. D. M.) and Scriven and Young, equal; McDonald; Shanks and Freeze, equal; Griffin; Bell (R.) and Heuser, equal; Hart; Walker and Draper and Rubinowitz,§ equal. *Class III.*—McPherson, Gray, Mingie, Cox;

† *Stanstead Wesleyan College.*
§ *Vancouver College.*

Papineau and Findlay† and Robinson,§ equal; Harvie and Gardner and Macleod and Hitchcock,† equal; Chandler and Mackenzie (C. I.) anad Craig, equal; Robertson and Burpee,§ equal; Campbell; Smith† and DeBeck,§ equal; Marshall, Wilson; Gaunt and Stewart (L. J.) and Laursen§ and McGeer, equal; Kimber, Bouchard, Cousineau, Dickenson, Wright; Joughins and Carter, equal; Jordan and Kaye, equal; McCoy.

MATHEMATICS.

(3). ADVANCED SECTION.

First Rank Honours.—Sheldon and McCally, Bell, Simpson. *Second Rank Honours.*—Lathe, McGougan, Rose.

PHYSICS.

Class I.—Bell (H.) and Sheldon, equal; Macaulay, McKenzie (A. D. M.); McGougan and Rose, equal; MacFarlane (C. M.), Gurd; Lomer and Mingie, equal; Brown (W. G.), Lathe, Stewart (L. J.), McCally, Stewart (J. U.), Molson. *Class II.*—Freeze and Walker, equal; McCallum; Findlay† and Smith,† equal; Griffin and Shanks, equal; Wilson, Kydd, Draper, Dickenson; Harvie and Wickware, equal; Gray; Chandler and Macleod, equal; Ross, Mackenzie (C.I.); Bell (R.) and Papineau, equal. *Class III.*—Archibald and Hutchinson, equal; Cox, Campbell, Locke; Craig and Wright, equal; Kimber and Marshall and McDonald and Simpson, equal; Young; Fenwick and Hart, equal; Robertson; DeBeck§; Gaunt and Heuser, equal; Joughins; Robinowitz§; Logan and McCoy and Laursen,§ equal; Dunham; Cross and Jordan, equal; Scriven, Thomson; French and Gardner, equal; Webster.

Royal Victoria College.

ELEMENTS OF MUSIC.

Class I.—Draper (prize), Baird, Hall, Riebe, Bovey. *Class II.*—Lightstone.

HISTORY OF MUSIC.

Class I.—Lindsay (prize), Hall, McKinnon, Baird, Clark, Mathewson. *Class II.*—Adams, Nairn, Shepherd. *Class III.*—Lightstone, Agnew.

THEORY AND HARMONY.

Higher Division.—Class I.—McKinnon (prize), Clark.

Lower Division.—Class I.—Harrington and Nairn, equal (prizes); Stevenson, Lindsay, Adams. *Class II.*—Shepherd, Agnew.

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† *Stanstead Wesleyan College.*
§ *Vancouver College.*

Faculty of Applied Science.

FOURTH YEAR (GRADUATING CLASS).

HONOURS.

(In alphabetical order.)

BLANCHARD, ARTHUR CLARENCE DOUGLAS.—Prize for Summer Thesis; Honours in Designing, Municipal Engineering, and Theory of Structures.

BURSON, HERBERT ARTHUR.—Prize for Summer Thesis; Honours in A. C. Machinery, Electrical Measurements, Electro-Chemistry.

CLEMENT, SHELDON BYRNE.—British Association Medal and Prize; Prize for Summer Thesis; Honours in Designing, Hydraulics, Hydraulic Machinery, Municipal Engineering, and Theory of Structures.

DEBLOIS, WILLIAM HOWARD.—British Association Medal and Prize; Honours in Chemistry and Mineralogy.

EDWARDS, WILLIAM MUIR.—British Association Medal and Prize; British Association Exhibition; Fraser & Chalmers' Scholarship; First Carlyle Prize; Honours in Mining, Mining Machinery and Designing.

FRASER, DONALD CAMERON.—Second Carlyle Prize; Honours in Designing and Mineral Analysis.

GLASSCO, ARCHIE PATRICK STINSON.—Honours in Dynamics of Machines and Electrical Measurements; Canadian General Electric Scholarship.

LLOYD, HERBERT MOSTYN.—Canadian General Electric Scholarship.

MCLAREN, JOHN HAROLD.—British Association Medal and Prize; Honours in A. C. Machinery, Electric Railways, Electro-Chemistry, Hydraulic Machinery, and Mechanical Engineering.

PATERSON, CHARLES STIVEN.—British Association Medal and Prize; Honours in Chemistry and Mineralogy.

RITCHIE, JOSEPH NORMAN.—Second Carlyle Prize; Honours in Advanced Metallurgy.

TAYLOR, CHARLES WILLIAM.—Honours in Electric Lighting and Electro-Chemistry.

WENGER, EDGAR ISAAC (B.A.Sc.).—Canadian General Electric Scholarship.

PASSED FOR THE DEGREE OF BACHELOR OF SCIENCE.

(In order of merit. Students of equal standing are bracketed together.)

CIVIL ENGINEERING.

Clement, Sheldon Bryne, Kingsville, Ont.
Blanchard, Arthur Clarence Douglas, Windsor, N.S.
McConkey, Walter Ross, Guelph, Ont.
Gagnon, Edmund Ernest, Westmount, Que.
Anderson, Thomas Victor, Ottawa, Ont.
Patterson, Frank Elliott, Almonte, Ont.

ELECTRICAL ENGINEERING.

McLaren, John Harold, Montreal, Que.
Burson, Herbert Arthur, St. Catharines, Ont.
Glassco, Archie Patrick Stinson, Hamilton, Ont.
Taylor, Charles William, Richwood, Ont.
{ Howard, Rupert Fortescue, Lachine, Que.
{ Walker, Frank Wilkes (B.Sc.), Montreal, Que.
Coussirat, Henri Alfred, Montreal, Que.
Neville, Thomas Patrick Joseph (B.Sc.), Halifax, N.S.
Wenger, Edgar Isaac (B.A.Sc.), Ayrton, Ont.
Sise, Paul Fleetford, Montreal, Que.
Ward, Percy Walton, Lachine, Que.
Lloyd, Herbert Mostyn, New Westminster, B.C.
Scott, Henry Maurice, Montreal, Que.

MECHANICAL ENGINEERING.

Schwitzer, Thomas Henry, Ottawa, Ont.
{ Burwell, Ernest Victor, London ,Ont.
{ Hampson, Edward Greville, Montreal, Que.
Cameron, Hugh Donald, Montreal, Que.
Lowden, Warden King, Montreal, Que.
Wilson, Reginald Clarence, Cumberland, Ont.

MINING ENGINEERING.

Edwards, William Muir, Ottawa, Ont.
Ritchie, Joseph Norman, Halifax, N.S.
Fraser, Donald Cameron, New Glasgow, N.S.
Frechette, Howells, Ottawa, Ont.
Archer, Augustus Rowley, New York, U.S.A.
Tupper, Charles, Vancouver, B.C.
Palmer, Ernest Edward, Toronto, Ont.
White, Gerald Verner, Pembroke, Ont.

Galbraith, Malcolm Thomas, Montreal, Que.
Ogilvie, Paul, Cummings' Bridge, Ottawa.
Flint, William George, Montreal, Que.
Donaldson, Hugh Walter, Hamilton, Ont.
McKenzie, Bertram Stuart (B.A.), London, Ont.

PRACTICAL CHEMISTRY.

Paterson, Charles Stiven, Montreal, Que.
DeBlois, William Howard, Halifax, N.S.

MECHANICAL ENGINEERING.

Sise, Paul Fleetford, Montreal Que.

THIRD YEAR.

HONOURS.

(In alphabetical order.)

Corless, Charles V.—Prize for Summer Thesis; First Mathematical Prize; McCarthy Prize for Field Work; Prizes for Mineralogy, Geology, Theory of Structures.
Dunfield, John C. W.—Prize for Graphic Statics.
Franklin, Emerson, L., B.A.—Prize for Physical Laboratory.
Heaman, John A.—Prize for Summer Thesis; Prizes for Mapping and Railroad Engineering.
Robertson, John F.—McCarthy Prize for Fieldwork; Prize for Practical Astronomy.
Scott, Harry E., B.A.—Prize for Experimental Physics.
Sterns, Frank E.—Prize for Summer Thesis; Second Mathematical Prize; Prizes for Dynamics of Machinery, Machine Design, and Mechanical Drawing.
Higman, Ormond.—Canadian General Electric Scholarship.

PASSED THE SESSIONAL EXAMINATIONS.

(In order of merit.)

CIVIL ENGINEERING.

Heaman, John A., London, Ont.
Bigger, Howell, Ottawa, Ont.
*Borden, Kentville, N.S.

ELECTRICAL ENGINEERING.

Scott, Harry E. (B.A.), Napanee, Ont.
Franklin, Emerson L. (B.A.), Wolfville, N.S.

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* *To pass Supplemental Examination.*

Maxwell, Marshall A., St. Stephen, N.B.
Jackson, Philip T., Toronto, Ont.
Hicks, Thomas N., Perth, Ont.
Smith, J. Macdonald, Petitcodiac, N.B.
Dunfield, John C. W., St. John's, Newfoundland.
*Murphy, William E., Shelbourne, N.S.
*MacKay, Eric J., St. John's, Newfoundland.

MECHANICAL ENGINEERING.

Sterns, Frank E., Morell, P.E.I.
Smith, Gerald M., St. Johns, Que.
Fry, David M., Bright, Ont.
Addie, Thomas H., Sherbrooke, Que.
Baird, Alexander, Sherbrooke, Que.
*Newton, Samuel R., Drummondsville, Que.

MINING ENGINEERING.

Corless, Charles V., New Durham, Ont.
Robertson, John F., Charlottetown, P.E.I.
De Pencier, Henry P., Vancouver, B.C.
McBride, Wilbert G., Ingelwood, Ont.
*Campbell, Charles McK., Winnipeg, Man.
*Coulson, John D., Toronto, Ont.

PRACTICAL CHEMISTRY.

*Jamieson, George E. T., Montreal, Que.
*Cape, Ernest K., Hamilton, Ont.

SECOND YEAR.

HONOURS.

(In alphabetical order.)

Cooper, Frank W.—Scott Prize.
Egleson, James E. A.—Prize for Physics.
Foreman, Alvah E.—Scott Exhibition and Prize; Prizes for Descriptive Geometry, Kinematics and Mathematics.
Haffner, Henry J. A.—Prizes for Descriptive Mechanism and Surveying.
Hall, Oliver.—Scott Exhibition and Prize; Prize for Mapping.
Jones, William M.—Prize for Mapping.
McKay, Frederick A.—Prize for Mechanical Drawing.
Roberts, Arthur R.—Prizes for Mechanical Drawing and Kinematics.
Rowlands, Charles.—Prize for Chemistry.

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* *To pass Supplemental Examination.*

PASSED THE SESSIONAL EXAMINATIONS.

(In order of merit.)

CIVIL ENGINEERING.

Jones, Harold W., Ottawa, Ont.
Haffner, Henry J. A., Winnipeg, Man.
*Cohen, Harris, Montreal, Que.
*†Lambart, Howard F., New Edinburgh, Ont.
*†Morse, William H., Bridgetown, N.S.
Beck, Alfred E., Penetanguishene, Ont.

ELECTRICAL ENGINEERING.

Foreman, Alvah E., Vancouver, B.C.
Conklin, Roscoe V., B.A., Winnipeg, Man.
Peaslee, Alexander S. L., Defiance, Ohio, U.S.A.
Rodger, Herbert F., St. John's, Newfoundland.
†McDonald, James F., Westville, N.S.
*Keith, Fraser S., Smith's Falls, Ont.
Blatch, Harry E., St. John's ,Newfoundland.
Trimingham, Charles L., Barbadoes, W.I.
*Cole, G. Percy, Montreal, Que.
Stokes, Charles W., B.A., Woodstock, N.B.
*†McCaskill, Kenneth, Vankleek Hill, Ont.
*Thorpe, William H., Montreal, Que.
*Pearson, Hartley M., Huntingdon, Que.
*Baker, William E., Montreal, Que.
*James, Bertram, Hearts Content, Newfoundland.
*Brecken, Walter R., Charlottetown, P.E.I.

MECHANICAL ENGINEERING.

Brown, Frederick B., Montreal, Que.
Roberts, Arthur R., Montreal, Que.
McKay, Frederick A., Montreal, Que.
*McKergow, Charles M., Westmount, Que.
*†Gillies, George A., Carleton Place, Ont.
*Denne, Reginald D. L., Montreal, Que.
*Edgar, John H., Montreal, Que.

MINING ENGINEERING.

Hall, Oliver, Washington, Ont.
Boright, Sherman H., Sutton, Que.

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* *To pass Supplemental Examination.*
† *Matriculation condition.*

Lucas, A. Stanley B., B.A., Hamilton, Ont.
Egleson, James E. A., Ottawa, Ont.
Gale, George G., Quebec, Que.
Rowlands, Charles, Albany, N.Y., U.S.A.
Haffner, Henry J. A., Winnipeg, Man.
Tilt, Edwin B., Waterloo, Ont.
*Cooper, Frank W., London, Ont.
Richards, Charles C., Charlottetown, P.E.I.
†Kendall, George, New Westminster, B.C.
*Pemberton, William P. D., Victoria, B.C.
*Graham, William F., Dundas, Ont.
*Musgrave, Robert, Duncans, B.C.
*Ross, James G., Embro, Ont.
*Langley, Albert G., Victoria, B.C.
*Stovel, Joseph H., Coraopolis, Pa., U.S.A.
*Brainerd, Herbert W., Montreal, Que.
*†Cameron, John A., Toronto, Ont.
*Porcheron, Alphonse, Montreal, Que.

PRACTICAL CHEMISTRY.

*Musgrave, William N., Duncans, B.C.

FIRST YEAR.

HONOURS.

(In alphabetical order.)

Cardew, John H.—Prize for Physics.
Carlyle, Ernest J.—Prize for English.
Chambers, Robert A.—Prize for Descriptive Geometry.
Chaplin, Charles J.—Prize for Mathematics.
Cole, George H.—Prizes for Mathematics and Lettering. Second Fleet Workshop Prize.
Drysdale, William F.—Prize for Descriptive Geometry.
Hamilton, Alfred McL.—First Fleet Workshop Prize.
Kent, George M.—Prize for Physics.
McDougall, Clarence H.—Second Fleet Workshop Prize.
McDougall, George K.—Prize for Freehand Drawing.

PASSED THE SESSIONAL EXAMINATIONS.

(In order of merit students of equal standing are bracketed together.)

Cole, George H., Ottawa, Ont.
Chaplin, Charles J., Westmount, Que.

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* *To pass Supplemental Examination.*
† *Matriculation condition.*

Blumenthal, Samuel J., Montreal, Que.
Carlyle, Ernest J., Woodstock, Ont.
Kemp, Robert A., Beamsville, Ont.
Cardew, John H., South Beach, Young's Point, Ont.
Drysdale, William F., Montreal, Que.
*Harvey, John P., Longhurst, Ont.
*Parlee, Norman W., Rossland, B.C.
Atkinson, M. Brodie, Westmount, Que.
McDougall, Clarence H., South Maitland, N.S.
McCloskey, Frederick W., Boiestown, N.B.
Lawrence, William D., Maitland, N.S.
Kent, George M., Truro, N.S.
Johnson, Frederick M. G., Montreal, Que.
*Taylor, Reginald F., Gananoque, Ont.
McDougall, George K., Montreal, Que.
Chambers, Robert A., Truro, N.S.
†Davis, Patrick, Windsor, Ont.
Sullivan, Michael H., Ottawa, Ont.
Pippy, George F., Springhill, N.S.
Mundy, Oswald A.,Hamilton, Ont.
†Sutherland, Charles, New Glasgow, N.S.
Wenger, John A., Ayrton, Ont.
Wilkes, Frederick C. D., Brantford, Ont.
Greey, John W. G., Toronto, Ont.
Piché, Ernest A., Montreal, Que.
†Keyes, Corlis G., Ottawa, Ont.
Devlin, Cecil C., Mohawk, Ont.
†LeMaistre, Frederick J., Westmount, Que.
McIntyre, Melvil B., Owen Sound, Ont.
Campbell, Colin St. C., Aldershott, Ont.
Wisdom, Stuart A., Dartmouth, N.S.
Webster, George B., Ottawa, Ont.
Roffey, Myles H., Bocking, Braintree, England.
*Wilson, William D., Hamilton, Ont.
*Marrotte, Louis H., Westmount, Que.
Würtele, John S. H., Acton Vale, Que.
*Fullington, Moses A. Newport, Vt., U.S.A.
*Hamilton, Alfred McL., Westmount Que.
*MacCarthy, Arthur K., Ottawa, Ont.
*Hogan, John, Westmount, Que.
*Price, Herbert P., Montmorency Falls, Que.
*Batchelder, Charles K., Newport, Vt., U.S.A.

* *To pass Supplemental Examination.*
† *Matriculation condition.*

*†Beaubien, James C., Outremont, Que.
*†Baker, C. Stanley, Hampstead, London, England.
*Barclay, Charles H., St. Paul, Minn,. U.S.A.
*Crichton, Gordon D., Halifax, N.S.
*Martin, Edward N., York, Ont.
*Fraser, Donald MacI., Montreal, Que.
*†Sutherland, Daniel H., River John, N.S.
*Higgins, Benjamin H., London, Ont.

ADMITTED TO THE DEGREE OF MASTER OF SCIENCE.

(In Course.)

Allen, Samuel James, B.Sc., Maitland, N.S.
Childs, Arthur Edward, B.A.Sc., Boston, Mass., U.S.A.
Colpitts, Walter William, B.Sc., Moncton, N.B. (*in absentia*).
Cornwall, Clement Arthur Kingscote, Ashcroft, B.C. (*in absentia*).
Duncan, Gailen Rupert, B.A.Sc., Montreal, Que.
Fraser, James William, B.Sc., Bridgeville, N.S.
Glassco, Jack Girdlestone, B.Sc., Hamilton, Ont.
Grier, Arthur Gordon, B.Sc., Montreal, Que.
Young, George Albert, B.A.Sc., Kingston, Ont.
Butler, Percy, B.Sc., Perth Amboy, N.J. (*in absentia*).

ADMITTED TO THE DEGREE OF DOCTOR OF SCIENCE.

(In Course.)

Bell, Robert, B.A.Sc., M.D., F.R.S., Ottawa, Ont.

STANDING IN THE SEVERAL SUBJECTS.

(Subjects alphabetically arranged.)

A. C. MACHINERY.

FOURTH YEAR.—*Class I.*—McLaren, Burson. *Class III.*—Wenger (B.A.Sc.), Taylor, Neville (B.Sc.), Glassco, Howard, Scott; Walker (B.Sc.) and Sise, equal; Lloyd and Ward, equal; Coussirat.

ARCHITECTURAL DRAWING (OPTIONAL).

SECOND YEAR.—*Class II.*—Jones, Cohen. *Class III.*—Lambart.

ARCHITECTURAL ENGINEERING.

FOURTH YEAR.—*Class I.*—Clement, Blanchard. *Class II.*—McConkey, Gagnon; Patterson (F.) and Anderson, equal. *Class III.*—Riddell.
THIRD YEAR.—*Class I.*—Heaman. *Class II.*—Bigger, Borden.

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* *To pass Supplemental Examination.*
† *Matriculation condition.*

ASSAYING.

FOURTH YEAR.—*Class I.*—Galbraith. *Class II.*—Donaldson and Palmer, equal; Fraser and Ritchie, equal; Edwards; Frechette and Tupper, equal; White. *Class III.*—Paterson (C. S.), Flint, McKenzie; DeBlois and Ogilvie, equal; Archer.

THIRD YEAR.—*Class I.*—Corless and Draper, equal. *Class II.*—Robertson, De Pencier, McBride. *Class III.*—Johnston; Campbell and Jamieson, equal; Maclaren (F. H.).

CHEMISTRY.

SECOND YEAR.—*Class I.*—Rowlands, Pemberton; Haffner and Peaslee and Tilt, equal; McDonald. *Class II.*—Hall and Rodger, equal; Foreman; Boright and Stovel, equal; Conklin, McCaskill, Musgrave (W. N.), Roberts; Blatch and Brown and Jones, equal; Lucas (A. S. B.); Keith and Trimingham, equal; Cole; Kendall and Richards and Ross, equal; McKay, Langley. *Class III.*—Cohen and Gale and Musgrave (R.), equal; Gillies, Baker, Draper (C. R.), Ward, Thorpe; Beauchamp and Savage and Stokes, equal.

CHEMISTRY (ANALYTICAL).

THIRD YEAR.—*Class I.*—Corless, Robertson, De Pencier; Canning and Draper, equal; McBride. *Class II.*—Brainerd and Maclaren (F. H.), equal; Campbell and Green and Porcheron and Lockerby and Crawford and Johnston, equal; Coulson.

CHEMISTRY (INDUSTRIAL).

THIRD YEAR.—*Class II.*—Cape, Keays. *Class III.*—Jamieson.

CHEMISTRY (ORGANIC).

THIRD YEAR.—*Class III.*—Canning.

D. C. DYNAMO MACHINERY.

FOURTH YEAR.—*Class I.*—Sise. *Class II.*—Smith (B.Sc.), Walker (B.Sc.), Neville (B.Sc.). *Class III.*—Wenger (B.A.Sc.).

THIRD YEAR.—*Class I.*—Scott, Hicks, Dunfield, Maxwell. *Class II.*—Franklin, Jackson, Brecken, Smith (J. M.). *Class III.*—MacKay, Murphy.

DESCRIPTIVE GEOMETRY.

SECOND YEAR.—*Class I.*—Foreman, Hall, Egleson; McKay and Roberts, equal. *Class II.*—Brown, Boright; McKergow and Jones, equal; Richards, Gale; Haffner and Lucas and Tilt, equal; Peaslee. *Class III.*—Graham, Rodger; Langley and Conklin and Rowlands, equal; Stokes; Cole and Thorpe, equal; McDonald, Lambart; Cooper and Blatch, equal; Denne and James and Kendall and Morse and Trimingham and Ross, equal.

FIRST YEAR.—*Class I.*—Drysdale, Chambers, Harris (S. L. D.), Chaplin, Parlee, Blumenthal; Carlyle and Kemp, equal; Harvey and McDougall (C. H.), equal; Cole (G. H.), Cardew, McDougall (G. K.), Atkinson; Beaubien and Pippy, equal. *Class II.*—McMurtry, Johnson; Kent and Lawrence and Taylor, equal; McCloskey and Mundy, equal; Davis, Würtele, Piché, Keyes, Wisdom, Marrotte, Webster, Campbell, LeMaistre, Baker, Mitchell; Batchelder and Dawe and Wilkes, equal; Hamilton (A. M.) and Sutherland (C.), equal; Wenger, Fullington, Devlin, Wilson. *Class III.*—Sullivan, Fraser (D. M.), Roffey, McIntyre, Greey, Hamilton (W.), MacCarthy, Crichton, Price; Browne and Cole (G. E.) and Sutherland (D. H.), equal; Barclay and Sutcliffe, equal.

DESIGNING.

FOURTH YEAR.—(*Electrical Engineering Course.*)—*Class I.*—McLaren (J. H.) and Burson and Taylor and Glassco and Howard and Coussirat, equal; Walker and Smith, equal. *Class II.*—Sise and Neville and Wenger and Lloyd and Boyd and Ward, equal; Scott and Forman and Higman, equal. (*Mechanical Engineering Course.*)—*Class II.*—Burwell and Schwitzer, equal; Lowden. *Class III.*—Millar, Wilson, Hampson, Cameron. (*Mining Engineering Course.*)—*Class I.*—Edwards and Fraser, equal. *Class II.*—Galbraith and Palmer, equal; Frechette; Ritchie and Tupper, equal; Archer and White, equal. *Class III.*—Donaldson and McKenzie, equal; Flint, Ogilvie.

DYNAMICS OF MACHINES.

FOURTH YEAR.—*Class I.*—Glassco, McLaren. *Class II.*—Hampson, Taylor, Burson, Boyd. *Class III.*—Burwell and Schwitzer, equal; Ward, Cameron, Higman, Howard, Lowden, Forman; Lloyd and Scott and Wilson, equal.

THIRD YEAR.—*Class I.*—Sterns, Franklin, Maxwell, Jackson, Hicks. *Class II.*—Baird, Fry, Scott; MacKay and Smith, (J. M.), equal; Smith (G. M.), Murphy, Dunfield, Brecken, Addie. *Class III.*—Edgar, Newton, Peck.

ELECTRIC LIGHTING.

FOURTH YEAR.—*Class I.*—Taylor, McLaren (J. H.), Walker (B.Sc.). *Class II.*—Burson, Glassco, Ward, Wenger (B.A.Sc.), Coussirat, Howard. *Class III.*—Sise, Neville (B.Sc.), Lloyd, Forman; Boyd and Smith (B.Sc.), equal; Scott.

ELECTRICAL MEASUREMENTS.

FOURTH YEAR.—*Class I.*—Glassco, Burson, McLaren (J. H.), Howard. *Class II.*—Taylor, Boyd, Walker (B.Sc.), Coussirat. *Class III.*—Neville (B.Sc.); Ward and Sise, equal; Wenger (B.A.Sc.), Lloyd, Smith (B.Sc.), Higman, Forman, Scott.

ELECTRO-METALLURGY.

FOURTH YEAR.—*Class I.*—Fraser. *Class II.*—Archer and Edwards, equal; Donaldson and McKenzie, equal; Flint and Frechette and Palmer and Ritchie, equal; Ogilvie and Tupper and White, equal. *Class III.*—Galbraith.

ELECTRIC RAILWAYS.

FOURTH YEAR.—*Class I.*—McLaren (J. H.), Burson, Lloyd. *Class II.*—Sise, Taylor; Ward and Neville (B.Sc.), equal; Glassco, Higman, Walker (B.Sc.); Howard and Coussirat, equal. *Class III.*—Smith (B.Sc.), Wenger (B.A.Sc.); Boyd and Scott, equal; Forman.

ELECTRO-CHEMISTRY.

FOURTH YEAR.—*Class I.*—Burson; McLaren and Taylor, equal; Glassco and Lloyd, equal; Boyd, Higman; Ward and Forman, equal; Howard. *Class III.*—Coussirat, Scott.

ELECTRO-MAGNETISM.

FOURTH YEAR.—*Class I.*—Walker (B.Sc.). *Class II.*—Sise, Wenge (B.A.Sc.), Neville (B.Sc.), Smith (B.Sc.).

THIRD YEAR.—*Class I.*—Maxwell, Scott. *Class II.*—Franklin, Hicks, Murphy; Dunfield and Jackson, equal; Brecken. *Class III.*—MacKay, Smith (J. M.).

ENGLISH.

FIRST YEAR.—*Class I.*—Carlyle, Parlee, Cole (G. H.) *Class II.*—Baker and Blumenthal, equal; Kemp, Hogan, Harvey; Marrotte and McCloskey, equal; Chaplin and Drysdale, equal; Keyes, Atkinson; Cardew and Davis and Taylor, equal; Devlin, Sullivan; Barclay and Hodgson and Wenger, equal. *Class III.*—Fullington, Johnson; Browne and LeMaistre and Piché, equal; Dawe and Fraser (D. M.) and McDougall (G. K.) and Wilkes and Price, equal; Greey and Hamilton (A. M.) and Manchester and Webster and Wilson, equal; Chambers; Campbell and Higgins and Lawrence, equal; Crichton and Mundy, equal; Roffey; Martin and Wisdom, equal; Sutherland (D. H.); Batchelder and and Shaughnessy and Sutcliffe and Sutherland (C.), equal.

FREEHAND DRAWING.

FIRST YEAR.—*Class I.*—McDougall (G. K.); Marler and McMurtry and Piché, equal; Chaplin and Pippy, equal; Hamilton (A.M.) and Harris and Johnson, equal; Kemp and McDougall (C. H.) and Mundy, equal; Drysdale, Cole (G. H.); Baker and Chambers, equal; McCloskey and Parlee and Taylor and Würtele, equal; Kent, Wilkes. *Class II.*—Wisdom, Cardew; Greey and Harvey, equal; Higgins and Wilson, equal; Carlyle; Atkinson and Cole (G. E.) and Keyes, equal; Davis and LeMaistre, equal; MacCarthy; Dawe and Hamilton (W.), equal; Beaubien and Sullivan, equal; Blumenthal; Gilmour (R. B.) and McIntyre and Price and Sutherland (C.) and Wenger, equal. *Class III.*—Roffey; Campbell and Fullington, equal; Crichton and Crombie and Manchester and Marrotte and Mitchell and Sutherland (D. H.), equal; Batchelder and Hodgson and Lawrence and Sutcliffe, equal; Browne and Devlin and Hogan and Martin and Webster, equal; Fraser (D. M.), Graham; Barclay and Hall, equal.

GAS ANALYSIS.

FOURTH YEAR.—*Class I.*—DeBlois. *Class II.*—Paterson.

GEODESY.

FOURTH YEAR.—*Class I.*—Clement. *Class II.*—McConkey and Blanchard, equal; Patterson (F.). *Class III.*—Anderson, Gagnon.

GEOLOGY, CANADIAN.

FOURTH YEAR.—*Class I.*—Edwards. *Class II.*—Ritchie, White; Fraser and Palmer, equal; Donaldson, Tupper, McKenzie; Archer and Flint and Ogilvie, equal; Galbraith. *Class III.*—Frechette.

GEOLOGY, PRACTICAL.

FOURTH YEAR.—*Class II.*—Fraser, Archer, Frechette, Edwards, Ritchie, Ogilvie. *Class III.*—Tupper and White, equal; Galbraith and Palmer, equal; Flint, McKenzie, Donaldson.

GRAPHICAL STATICS.

FOURTH YEAR.—*Class I.*—Blanchard and Clement, equal; McConkey, Gagnon. *Class II.*—Patterson (F.), Anderson.

THIRD YEAR.—*Class I.*—Dunfield; Corless and Robertson and Sterns, equal; Scott, Maxwell. Smith (G.M.), Newton; Franklin and Fry and Smith (J.M.), equal; Borden and Murphy, equal; De Pencier; Heaman and Hicks, equal; Jackson. *Class II.*—Bigger and Peck, equal; Addie and MacKay, equal; Cowen, Campbell; Coulson and McBride, equal; Green, Baird. *Class III.*—Porcheron, Maclaren (F.H.), Brecken, Edgar.

HYDRAULICS.

FOURTH YEAR.—(*Civil and Mechanical Engineering Courses*).—*Class I.*—Clement, Blanchard, McConkey. *Class II.*—Schwitzer, Gagnon. *Class III.*—Patterson (F.), Burwell, Cameron; Hampson and

Anderson, equal ; Riddell. (*Electrical and Mining Engineering Courses*).—*Class I.*—McLaren, Archer, Edwards. *Class II.*—McKenzie, Burson, Glassco, Frechette, Tupper, Ritchie. *Class III.*—Palmer and Taylor and Ward, equal ; White ; Scott and Forman and Fraser (D.C.), equal ; Higman, Lloyd, Galbraith, Boyd, Howard, Ogilvie, Coussirat.

HYDRAULIC MACHINERY.

FOURTH YEAR.—(*Civil, Electrical and Mechanical Engineering Course.*)—*Class I.*—McLaren, Clement, Burson; Blanchard and Coussirat, equal; Ward; Wilson and Higman and Gagnon, equal. *Class II.*—Lloyd, Forman, Glassco, McConkey; Hampson and Schwitzer, equal; Howard and Taylor, equal. *Class III.*—Scott and Patterson (F.) and Millar, equal; Anderson and Riddell, equal; Burwell, Cameron, Lowden. (*Mining Engineering Course.*)—*Class I.*—Archer. *Class II.*—Edwards.

KINEMATICS OF MACHINES.

SECOND YEAR.—*Class I.*—Foreman, Roberts, Franklin, Brown. *Class II.*—Maxwell, Cole (G. P.), McKay, Conklin, Peaslee, Rodger, McKergow, Stokes. *Class III.*—Denne, Baker, Pearson; Gillies and Thorpe, equal; McDonald, Sewell; Blatch and Keith and McCaskill, equal; Trimingham, Ward.

LABORATORIES.

FOURTH YEAR.—(*Chemical Laboratory.*)—*Class I.*—Paterson (C.), DeBlois.

THIRD YEAR.—(*Chemical Laboratory*) (*Chemistry Course.*)—*Class II.*—Jamieson, Cape.

SECOND YEAR.—(*Chemical Laboratory*) (*Civil, Electrical, Mechanical and Mining Courses.*)—*Class I.*—Boright, Rowlands, McKay, Graham; Brown and Conklin and Cooper and Keith and Langley and Lucas and Ross and Tilt, equal; Gale, Pemberton; Musgrave (R.) and Rodger and Stovel, equal; Forman and Haffner and Jones and Thorpe, equal; Cohen and Hall and Kendall and McDonald and Trimingham, equal. *Class II.*—Stokes, Richards, McCaskill; Baker and Blatch and Cole and Gillies and Peaslee, equal; Roberts, Cameron, McKergow. *Class III.*—Lambart; Denne and Draper, equal; James and Morse, equal. (*Chemistry Course.*)—*Class III.*—Musgrave, Savage.

FOURTH YEAR.—(*Dynamo Laboratory.*)—*Class I.*—Burson and McLaren (J. H.) and Taylor, equal ; Coussirat and Glassco and Howard, equal. *Class II.*—Smith and Walker, equal ; Neville and Sise and Wenger, equal ; Boyd and Lloyd and Ward, equal. *Class III.*—Forman and Higman and Scott, eqnal.

THIRD YEAR.—(*Dynamo Laboratory.*)—*Class I.*—Franklin and Jackson and Maxwell, equal. *Class II.*—Brecken and Ferguson and Hicks and Scott, equal ; Dunfield and Murphy and Smith (J. M.) equal. *Class III.*—Mackay.

FOURTH YEAR.—(*Geodetic Laboratory*) *Class I.*—Blanchard and Clement, equal. *Class II.*—Anderson and Gagnon and Patterson (F.), equal ; McConkey.

FOURTH YEAR.—(*Hydraulic Laboratory*)—(*Civil and Mechanical Engineering Courses*).—*Class I.*—Blanchard and Clement, equal ; McConkey and Schwitzer, equal. *Class II.*—Anderson and Wilson and Riddell, equal ; Cameron and Lowdon and Burwell, equal ; Hampson and Patterson (F.), equal ; Gagnon. *Class III.*—Millar. (*Electrical Engineering Course*)—*Class I.*—Taylor, McLaren (J.H.) ; Burson and Howard, equal. *Class II.*—Boyd and Glassco, equal ; Higman ; Lloyd and Ward, equal ; Coussirat. *Class III.*—Forman.

FIRST YEAR.—(*Mathematical Laboratory.*)—*Class I.*—Chaplin, Cole (G. H.), Lawrence, Johnson; Harvey and Sutherland (C.), equal; Blumenthal, McDougall (C. H.); Kemp and Kent, equal; Chambers and Devlin, equal; Drysdale and Pippy and Wenger, equal; Carlyle and LeMaistre and McCloskey, equal; Atkinson and Roffey and Davis, equal; McIntyre, Cardew and Taylor, equal. *Class II.*—McDougall (G. K.), Mundy, Wisdom; Hamilton (A. M.) and Marrotte, equal; Greey and Parlee, equal; Piché and Porter, equal; Batchelder and Fullington and Keyes, equal; Campbell; Webster and Wilkes, equal; Sullivan, Würtele, Wilson, Beaubien, MacCarthy, Price, Hogan.

FOURTH YEAR.—(*Mineral Analysis Laboratory.*)—*Class I.*—Fraser, White, Ritchie, Archer. *Class II.*—Edwards, Palmer, Frechette, Galbraith, McKenzie; Ogilvie and Tupper, equal; Flint, Donaldson.

FOURTH YEAR.—(*Mining and Metallurgical Laboratory.*)—*Class I.*—Edwards, Frechette. *Class II.*—Fraser, Flint, White, Ritchie, Palmer, Galbraith, Donaldson, Tupper, Ogilvie, Archer. *Class III.*—McKenzie.

THIRD YEAR.—(*Physical Laboratory.*)—(*Civil, Mechanical, Mining, and Chemistry Courses.*)—*Class I.*—Newton and Smith (G. M.) and Sterns, equal; Porcheron and Robertson, equal; Baird; Addie and Corless and De Pencier and Peck, equal; Fry, Johnston and McLaren (F. H.) and McBride, equal; Campbell and Coulson, equal. *Class II.*—Heaman, Edgar; Bigger and Borden, equal; Keays, Cape, Jamieson. (*Electrical Engineering Course.*)—*Class I.*—Franklin and Scott and Smith (J. M.), equal; Hicks and Jackson and Maxwell and Murphy, equal; Dunfield, Brecken, Mackay.

SECOND YEAR.—(*Physical Laboratory.*)—(*Civil, Mechanical, Mining and Chemistry Courses.*)—*Class I.*—Boright and Brainerd and Brown and Egleson and Gale and McKay, equal; Graham, Hall, Haffner; McKergow and Roberts and Stovel, equal; *Class II.*—Denne and Lucas and Ross and Rowland and Sims and Tilt, equal; Cooper and Langley and Morse, equal; Cameron and Jones and Musgrave (R.), equal; Gillies and Kendall and Lambart and Musgrave (W. N.) and Savage, equal; Cohen and Lawrence and Pemberton and Porcheron and Richards, equal; Crawford and Landry, equal. (*Electrical Engineering Course.*)—*Class I.*—Cole (G. P.) and Conklin and Foreman and Keith, equal; Brecken, James; McCaskill and McDonald, equal; Baker and Pearson equal; Trimingham, Blatch, Ward; Peaslee and Rodger and Stokes, equal. *Class III.*—Thorpe, Porter, Brown, McKay, Sewell; Beauchamp and Smith (R. E.), equal.

FIRST YEAR.—(*Physical Laboratory.*)—*Class I.*—Cole (G. H.) and Johnson and Kent and Wenger and Wilkes, equal; Chaplin and Fullington and Manchester and Marrotte and McCloskey and McDougall (C. H.) and McDougall (G. K.) and McMurtry and Mitchell, equal; Crichton and Harvey and Keyes and LeMaistre and Sullivan, equal; Chambers and Devlin and Hamilton (A. M.) and MacCarthy and Martin and Sutherland (C.) and Sutherland (D. H.), equal: Beaubien and Cardew and Harris (S. D.) and McIntyre, equal; Campbell and Cole (G. E.) and Crombie and Parlee and Piche, equal; Blumenthal and Davis and Pippy, equal; Gilmour; Barclay and Dawe and Drysdale and Fraser (D. MacI.) and Taylor and Webster and Wilson, equal; Batchelder and Browne and Carlyle and Marler and Mundy, equal; Graham and Greey, equal; Hogan and Lawrence, equal; Kemp and Wurtele, equal; Hamilton (W.) and Hodgson and Price, equal. *Class II.*—Atkinson and Shaughnessy and Wisdom, equal; Hersey, Baker, Roffey, Preston; Higgins and Williamson, equal.

FOURTH YEAR.—(*Physical Chemistry Laboratory*)—*Class I.*—Paterson (C. S.), DeBlois.

FOURTH YEAR.—(*Testing Laboratory.*) (*Civil Engineering Course.*)—*Class I.*—Clement; Anderson and Blanchard and Gagnon and McConkey, equal. *Class II.*—Patterson (F.) and Riddell, equal.

THIRD YEAR.—(*Testing Laboratory.*)—(*Civil and Mining Engineering Courses.*)—*Class I.*—Corless and Bigger and Robertson and Campbell and De Pencier and Green and Porcheron, equal. *Class II.*—Maclaren (F. H.) and Beck, equal; Heaman and McBride, equal. *Class III.*—Coulson. (*Electrical and Mechanical Engineering Courses.*)—*Class I.*—Smith (G. M.) and Newton and Edgar, equal; Peck, Scott. *Class II.*—MacKay, Dunfield; Brecken and Franklin, equal; Baird and Addie and Jackson and Maxwell and Murphy and Smith (J. M.), equal; Fry and Hicks and Sterns, equal.

FOURTH YEAR.—(*Thermodynamic Laboratory.*)—*Class I.*—Burwell and Schwitzer, equal. *Class II.*—Hampson, Cameron, Lowden. *Class III.*—Wilson, Millar.

LETTERING.

FIRST YEAR.—*Class I.*—Cole (G.H.), Chambers, Chaplin; Hamilton (A. M.) and Kent, equal; Harvey and McCloskey and Mundy and Parlee, equal; Baker and Drysdale and Pippy and Würtele, equal; Harris (S.L.D.) and Piché, equal; Johnson and McDougall (C.H.) and McDougall (G.K.), equal; Wisdom; Atkinson and Higgins and LeMaistre and MacCarthy, equal; Cardew and Carlyle and Dawe and Fraser (D.M.), equal. *Class II.*—Sullivan; Cole (G.E.) and Crichton and Fullington and Kemp and Wenger and Wilkes, equal; Batchelder and Keyes and Manchester and Marrotte and Taylor and Wilson, equal; Hamilton (W.) and Hodgson, equal; Greey and Marler and McMurtry and Price, equal; Blumenthal and Sutherland (D.H.), equal; Devlin and Martin and Webster, equal; Barclay and Campbell and Davis and Mitchell, equal; Lawrence, Browne; Crombie and Gilmour (R.B.) and Graham and Hogan and Sutherland (C.), equal. *Class III.*—McIntyre; Beaubien and Shaughnessy, equal; Sutcliffe, Roffey, Williamson.

MACHINE DESIGN.

FOURTH YEAR.—(*Electrical Engineering Course.*)—*Class I.*—Burson, McLaren. *Class II.*—Howard, Glassco, Coussirat, Ward. *Class III.*—Higman and Lloyd, equal; Boyd, Scott, Taylor. (*Mechanical Engineering Course.*)—*Class I.*—Hampson, Burwell. *Class II.*—Schwitzer, Cameron. *Class III.*—Lowden, Wilson.

THIRD YEAR.—(*Electrical and Mining Engineering Courses.*)—*Class I.*—Corless. *Class II.*—Maxwell; De Pencier and Scott, equal; Smith (J. M.) *Class III.*—Robertson, Franklin, Hicks, Campbell, Jackson, Brecken, Coulson; Dunfield and Maclaren (F. H.) and McBride, equal. (*Mechanical Engineering Course.*)—*Class I.*—Sterns. *Class II.*—Smith (G. M.), Addie. *Class III.*—Fry, Baird, Newton.

MAPPING.

THIRD YEAR.—(*Civil Engineering Course.*)—*Class I.*—Heaman, Borden. *Class II.*—Bigger, Beck. (*Mining Engineering Course.*)—*Class I.*—Campbell and De Pencier and Robertson, equal. *Class II.*—Porcheron. Corless. *Class III.*—Coulson, McBride, Brainerd, Maclaren (F. H.)

SECOND YEAR.—(*Civil Engineering Course.*)—*Class I.*—Jones. *Class II.*—Lambart, Haffner, Morse. *Class III.*—Lawrence, Cohen, Landry, Robillard. (*Mining Engineering Course.*)—*Class I.*—Hall, Cooper, Graham. *Class II.*—Gale; Egleson and Musgrave (R.), equal; Boright, Langley; Lucas and Pemberton, equal; Haffner and Stovel, equal. *Class III.*—Rowlands and Ross, equal; Richards, Tilt, Kendall, Cameron.

MATHEMATICS.

THIRD YEAR.—(*Calculus, etc.*)—*Class I.*—Corless and Sterns, equal; Smith (G.M.), DePencier, Robertson, Maxwell, Scott, Heaman, Smith (J.M.). *Class II.*—Fry, Mackay (E.), Bigger, Jackson, Murphy, Dunfield. *Class III.*—Hicks and McBride, equal; Baird, Edgar, Addie; Borden and Coulson, equal; Millar.
Mechanics.—*Class I.*—Corless and Robertson and Scott, equal; Sterns, Franklin; Heaman and Hicks, equal; Maxwell. *Class II.*—De Pencier, Jackson, Murphy, Smith (J.M.); Bigger and Mackay (E.) and Smith (G.M.), equal; Fry. *Class III.*—Addie, McBride, Dunfield, Baird.

SECOND YEAR.—(*Analytical Geometry*)—*Class I.*—Foreman and Hall and Lucas, equal; Jones, Egleson; Brown and Cooper and Peaslee and Roberts, equal; Rowlands, McKay, Gale, Boright, Rodger, Musgrave (W). *Class II.*—Keith; Ross and Trimingham, equal; Graham and Haffner and Pearson, equal; Blatch; Conklin and Thorpe and Tilt, equal; McCaskill and McDonald and Musgrave (R.), equal; Baker and Cohen, equal; Brainerd and Richards and Stokes, equal; Cameron and Stovel, equal. *Class III.*—Crawford; Beck and Landry, equal; Kendall, McKergow, Morse, Smith (R.E.); Gillies and Lambart and Sewell and Ward, equal.
Calculus.—*Class I.*—Foreman, Lucas, Haffner, Egleson, Cooper, Hall, Rowlands, Gale, Brown, Boright, Mackay; Roberts and Tilt, equal; Rodger. *Class II.*—Cohen, Jones, Richards, Conklin, Thorpe; Baker and Peaslee and Ross, equal; Blatch and Kendall and Lambart, equal; McDonald. *Class III.*—McCaskill and Musgrave (W.), equal; Pemberton, Crawford; Langley and Trimingham, equal; Brainerd; Sewell and Stovel, equal; Cole; Pearson, Keith; McKergow and Morse, equal; Savage, Musgrave (R.); Smith (R.E.) and Stokes, equal.

Mechanics.—*Class I.*—Foreman, Hall, Boright. *Class II.*—Jones, McKay; Roberts and Rodger, equal; Lucas, Gale, Stokes, Cooper, Conklin, Pearson, Blatch; Brown and Tilt and Trimingham, equal; Peaslee; Haffner and Lambart and McDonald, equal; Baker and Pemberton and Rowlands, equal. *Class III.*—Gillies, Stovel, Egleson; Keith and Morse, equal; Musgrave (R.), Kendall; Beck and Denne and Graham and Richards, equal; Langley; McKergow and Ross, equal; Brainerd; Cohen and Cole and McCaskill, equal.

FIRST YEAR.—*Algebra.*—*Class I.*—Chaplin; Carlyle and Kemp, equal Sullivan; Greey and McIntyre, equal; Cole (G. H.), Lawrence, Wenger, McDougall (C. H.); Cardew and Harvey, equal; Drysdale; Kent and Roffey, equal; Keyes; Atkinson and Blumenthal and Taylor, equal; McCloskey; Davis and MacCarthy, equal. *Class II.*—Parlee, Sutherland (C.), Wilson, Pippy, Campbell, Wilkes, Hogan, Johnson, Devlin, Chambers, Webster, Fraser (D. M.) *Class III.*—McDougall (G. K.), Mundy; Dawe and Martin, equal; Higgins, Wisdom; Hamilton (A. M.) and Marrotte and Piché, equal; LeMaistre, Hodgson, Fullington; Crichton and Price, equal; Sims and Sutcliffe and Würtele, equal; Barclay and Beaubien and Sutherland (D. H.), equal.

Dynamics.—Class I.—Lawrence and McDougall (C. H.), equal; Chaplin and Cole (G. H.), equal; Kemp, Kent; Cardew and Davis; equal; Blumenthal; Atkinson and Carlyle equal: Parlee, Pippy; Dawe and Johnson, equal; Harvey; McCloskey and Taylor, equal; Webster. *Class II.*—Drysdale and McDougall (G. K.), equal, Sutherland (C.) and Wenger, equal; Mundy and Piche, equal; Chambers, Campbell, McIntyre; Devlin and Greey and Price, equal; Wilkes; Keyes and Würtele, equal; Hamilton (A. M.) and Sullivan, equal; Hogan and LeMaistre, equal. *Class III.*—Crichton and Martin, equal; Roffey and Wilson and Wisdom, equal; Batchelder, Beaubien, Marrotte; Barclay and McCarthy and Manchester and Sutcliffe, equal.

Geometry.—Class I.—Lawrence; Blumenthal and McDougall (C. H.), equal; Cole (G. H.) *Class II.*—Kemp; Chaplin and Drysdale, equal; Cardew and Kent, equal; Mundy, Chambers; Devlin and Johnson, equal; McCloskey, Sutherland (C.), Atkinson, Wilkes; Davis and McIntyre, equal; Sullivan, Roffey. *Class III.*—Piché; Carlyle and McDougall (G. K.), equal; Wisdom, *Harvey; Campbell and MacCarthy, equal; Greey and Pippy and Porter, equal; Hogan and LeMaistre, equal; Fullington and Webster, equal; Keyes; *Parlee and *Taylor, equal; Crichton and Dawe and Lockerby and Wenger and Würtele, equal; Baker and Beaubien and *Higgins.
Trigonometry.—Class I.—Blumenthal, Chaplin; Greey and Sullivan, equal; Cole (G. H.), Carlyle; Atkinson and Drysdale, equal; Cardew, *Class II.*—Wilson, Johnson, Taylor; Harvey and Sutherland (C.), equal; Davis, McCloskey, Wilkes; McIntyre and Pippy, equal; Kemp; Kent and McDougall (G. K.), equal; Wenger, LeMaistre and MacCarthy, equal; Lawrence and Martin and Parlee, equal; McDougall (C. H.), Hogan; Campbell and Fullington, equal. *Class III.*—Würtele, Dawe, Roffey; Devlin and Wisdom, equal; Marrotte, Chambers, Mundy, Barclay, Keyes; Batchelder and Webster, equal; Lockerby and Piché and Price and Sutcliffe, equal.

MATHEMATICS (SPECIAL EXAMINATION).

SECOND YEAR.—(*Calculus.*)—*Class I.*—Davis. *Class III.*—Beck.

MECHANICAL DRAWING.

THIRD YEAR.—(*Electrical and Mining Engineering Courses.*)—*Class I.*—Smith (J. M.) and Franklin, equal; Hicks and Robertson and De Pencier, equal; Dunfield. *Class II.*—Campbell and Maxwell, equal; Jackson, Corless, McBride, Murphy, Coulson. *Class III.*—Donaldson, Maclaren (F. H.). (*Mechanical Engineering Course.*)—*Class I.*—Sterns, Newton, Fry, Smith, (G. M.), Addie, Peck, Baird. *Class II.*—Edgar.

SECOND YEAR.—(*Electrical and Mining Engineering Courses.*)—*Class I.*—Ward, Egleson. *Class II.*—Foreman, Haffner, Graham; Conklin and Peaslee and Stokes and Tilt, equal; Kendall and Stovel, equal; Cole and Cooper and Lucas and Thorpe, equal; McCaskill; Boright and Gale and Lockerby, equal; Pemberton, Hall, Musgrave (R.); Keith and Ross, equal. *Class III.*—Richards, Pearson; Rodger and Trimingham, equal; James; Blatch and Langley and Porter and Rowlands, equal; Baker and McDonald, equal.—(*Mechanical Engineering Course.*)—*Class I.*—McKay, Roberts, McKergow, Brown. *Class II.*—Gillies, Denne, Fraser (R. L.)

**Supplemental in Plane Geometry.*

MECHANICAL ENGINEERING.

FOURTH YEAR.—(*Civil, Electrical, and Mining Engineering Courses.*)—*Class I.*—Maclaren (J.H.), Archer, Burson, Ward, Clement. *Class II.*—Boyd and McConkey, equal; Taylor, Higman, Glassco, Edwards, Howard, Coussirat, Ogilvie, Tupper. *Class III.*—Blanchard; Anderson and Fraser and Scott, equal; Galbraith and Lloyd, equal; Patterson (F.); Flint and McKenzie, equal; White; Frechette and Palmer and Ritchie, equal. (*Mechanical Engineering Course*).--*Class I.*—Hampson. *Class II.*—Schwitzer, Cameron, Wilson, Lowden, Burwell. *Class III.*—Millar.

MECHANISM.

SECOND YEAR.—*Class I.*—Haffner, Morse, Boright; Hall and Jones and Kendall, equal; Langley and Lucas, equal. *Class II.*—Pemberton, Cooper. Graham; Gale and Richards, equal; Ross and Tilt, equal. *Class III.*—Rowlands, Stovel, Cameron; Cohen and Musgrave (R.), equal; Lambart.

METALLURGY.

THIRD YEAR.—(*Mechanical Engineering Course.*)—*Class I.*—Sterns. *Class II.*—Edgar, Addie, Newton, Fry; Baird and Smith (G.M), equal; Peck. (*Mining Engineering Course.*) *Class I.*—Corless. *Class II.*—Robertson, De Pencier, McBride, Canning. *Class III.*—Campbell and Jamieson, equal; Porcheron, Coulson, Cape.

METALLURGY (ADVANCED.)

FOURTH YEAR.—*Class I.*—Ritchie. *Class II.*—Donaldson and Ogilvie, equal; Fraser; Frechette and White, equal; Galbraith, Tupper. *Class III.*—Flint and Palmer, equal; McKenzie.

METALLURGY (COPPER AND LEAD)

FOURTH YEAR.—*Class I.*—Edwards. *Class II.*—Fraser, Tupper. *Class III.*—Ritchie; White and Ogilvie, equal; Archer, Palmer, Donaldson, Flint, McKenzie, Frechette Galbraith.

METALLURGY (GOLD).

FOURTH YEAR.—*Class I.*—Edwards. *Class II.*—Fraser; Archer and Ritchie, equal; Tupper, Ogilvie; Donaldson and Galbraith, equal; Frechette. *Class III.*—Flint and McKenzie, equal; White, Palmer.

METALLURGY (IRON AND STEEL).

FOURTH YEAR.—*Class I.*—None. *Class II.*—Edwards, Ritchie; McKenzie and Frechette, equal; Archer and Flint and Tupper, equal. *Class III.* Palmer; Ogilvie and Fraser, equal; White; Donaldson and Schwitzer, equal; Millar: Burwell and Cameron and Galbraith and Hampson and Lowden, equal. Wilson.

MINERAL ANALYSIS.

FOURTH YEAR.—*Class I.*—Fraser, Archer. *Class II.*—Tupper, White Donaldson and Ritchie, equal. *Class III.*—Frechette and McKenz and Palmer, equal; Edwards, Flint.

MINERALOGY (ADVANCED).

FOURTH YEAR.—(*Mining Engineering Course.*)—*Class I.*—White, Ritchie. *Class II.*—Edwards and Frechette, equal; Archer, Ogilvie, Fraser and Tupper, equal; Donaldson, Palmer, Flint, Galbraith, McKenzie. (*Practical Chemistry Course.*)—*Class I.*—DeBlois, Paterson, (C.S.)

MINERALOGY (ADVANCED).

THIRD YEAR.—*Class I.*—Corless, Robertson. *Class II.*—McBride; Campbell and Canning, equal; DePencier. *Class III.*—Burchell.

MINERALOGY (DETERMINATIVE.)

THIRD YEAR.—*Class I.*—Corless; DePencier and Robertson, equal, Canning, McBride and Johnston, equal; Campbell and Coulson, equal. *Class II.*—Cape; Jamieson and Porcheron, equal; Green. *Class III.*—*Maclaren (F. H.)

MINING.

FOURTH YEAR.—*Class I.*—Edwards, Frechette. *Class II.*—Ritchie, Tupper, Graton, Galbraith, Flint, Palmer. *Class III.*—Ogilvie and McKenzie, equal; Fraser; Archer and Donaldson and White, equal.

MINING (ADVANCED).

FOURTH YEAR.—*Class I.*—Edwards, Archer. *Class II.*—Fraser, Palmer; Frechette and Tupper, equal; Galbraith, McKenzie, Ritchie. *Class III.*—White, Ogilvie, Donaldson.

MUNICIPAL ENGINEERING (WATER SUPPLY).

THIRD AND FOURTH YEARS.—*Class I.*—Clement, Blanchard, Heaman. *Class II.*—Bigger, Borden. *Class III.*—McConkey, Riddell; Beck and Patterson (F.), equal; Anderson, Gagnon.

MUSEUM WORK IN GEOLOGY.

THIRD YEAR.—*Class I.*—Corless; Robertson and Campbell, equal; De Pencier and Heaman, equal *Class II.*—Bigger; Canning and Green, equal; Borden and Coulson and McBride, equal; Jamieson. *Class III.*—Porcheron, Cape, Johnston, Maclaren (F. H.)

ORE DRESSING.

THIRD YEAR.—*Class I.*—Robertson, Corless, De Pencier. *Class II.*—McBride, Canning; Campbell and Coulson and Porcheron, equal. *Class III.*—Green and Jamieson, equal; Maclaren (G. M.); Cape and Maclaren (F. H.), equal.

PERSPECTIVE AND MAPPING.

THIRD YEAR.—*Class I.*—Heaman. *Class III*—Bigger, Borden.

**Supplemental in Paper.*

PETROGRAPHY.

FOURTH YEAR.—*Class II.*—Ritchie and Tupper, equal; Archer, Edwards Frechette. *Class III.*—Ogilvie, Palmer, Fraser, Flint and McKenzie, equal; Galbraith and White, equal.

PHYSICAL CHEMISTRY.

FOURTH YEAR.—*Class I.*—Paterson (C.S.), DeBlois.

PHYSICS.

THIRD YEAR.—*Class I.*—Scott, Sterns, Corless, Robertson, Franklin, Hicks, Heaman. *Class II.*—Jackson, Maxwell, Mackay, Smith (G.M.); Bigger and De Pencier and McBride, equal. *Class III.*—Smith (J.M.), Brecken; Dunfield and Murphy, equal; Borden; Beck and Fry, equal; Brainerd, Addie; Baird and Johnston, equal; Campbell, Newton.

SECOND YEAR.—*Class I.*—Egleson, Roberts, Cole, Peaslee, Conklin *Class II.*—Boright and Foreman, equal; Brown and Rowlands, equal; Lucas, Blatch, McKergow, McKay; Hall and Keith and Pemberton and Rodger and Thorpe, equal. *Class III.*—Brecken, Ross; Denne and Lambart and Tilt, equal; Musgrave (W.N.); Baker and Graham, equal; Trimingham, James, Haffner; Jones and Stovel, equal; McCaskill and McDonald, equal; Gale; Beauchamp and Stokes, equal; Brainerd; Kendall and Richards, equal; Langley and Morse, equal; Gillies; Musgrave (R.) and Sims, equal.

FIRST YEAR.—*Class I.*—Harris (S.L.D.); Cardew and Kent, equal; Atkinson and Chaplin, equal; Cole (G.E.) and Cole (G.H.) equal; Taylor, Carlyle; Harvey and McDougall (G.K.), equal; McCloskey and McDougall (C.H.), equal; Blumenthal; Kemp and Lawrence, equal; McMurtry and Parlee, equal. *Class II.*—Drysdale, Pippy, Mundy, Sutherland (C.), Davis, Sullivan, Hogan; Chambers and Sutherland (D.H.) equal; Devlin and McIntyre and Roffey, equal. *Class III.*—Marrotte and Price, equal; LeMaistre, Wenger; Johnson and Piché, equal; Batchelder and Webster and Wisdom, equal; Fullington, Hamilton (A.M.), Keyes, Higgins, Fraser (D.M.), Greey; Baker and Dawe, equal; Campbell, Graham, Wilkes, Würtele; Barclay and Browne and Wilson, equal; Harvey, Martin; Beaubien and MacCarthy, equal.

PRACTICAL ASTRONOMY

THIRD YEAR.—*Class I.*—Robertson, Corless, De Pencier. *Class II.*—Heaman, Maclaren (G.), McBride, Bigger. *Class III.*—Borden, Green, Coulson.

RAILWAY ENGINEERING.

THIRD AND FOURTH YEARS.—(*Civil and Mining Engineering Courses*).—*Class I.*—Heaman; Blanchard and Clement, equal. *Class III.*—Borden and McConkey, equal; Gagnon and Anderson, equal; Bigger, Patterson (F.)

SHOPWORK.

FOURTH YEAR.—*Class I.*—Burwell; Lowden and Schwitzer, equal; Wilson, Millar, Hampson, Cameron. *Class II.*—Pyke.

THIRD YEAR.—(*Electrical Engineering Course*).—*Class I.*—Smith (J.M.), Hicks, Franklin, Scott, Jackson, Murphy. *Class II.*—Dunfield and Maxwell, equal; MacKay and Pearson, equal; Dupuis. *Class III.* Smith (R.E.) (*Mechanical and Engineering Course*). *Class I.*—Baird and Fry, equal.; Newton, Sterns, Smith (G.M.) Addie. *Class II.*—Peck, Edgar.

SECOND YEAR —(*Civil and Mining Engineering Course*).—*Class I.*—Graham and Hall, equal ; Boright and Gale and Stovel, equal ; Kendall, Lucas ; Cohen and Musgrave (R.), equal. *Class II.*—Morse, Richards ; Cameron and Jones and Langley, equal ; Tilt. *Class III.* Haffner ; Egleson and Rowlands, equal ; Landry and Ross, equal ; Cooper and Lambart, equal ; Robillard. (*Electrical and Mechanical Engineering Courses*).—*Class I.*—Gillies and McKergow, equal ; Brown, McKay, Keith ; Conklin and Foreman, equal. *Class II.*—Baker ; McCaskill and Roberts, equal ; James ; McDonald and Stokes, equal ; Cole and Denne and Rodger, equal ; Beauchamp and Thorpe and Ward, equal ; Peaslee, Blatch. *Class III.*—Trimingham, Sewell, Porter.

FIRST YEAR.—*Class I.*—Cole and Harvey, equal ; Dawe and Franklin, equal ; Mitchell and Parlee, equal ; Chambers and Manchester and McDougall (C.K.) and Pippy and Taylor and Wisdom, equal. *Class II.*—Sutherland (C.) and Wenger and Wilkes, equal ; Batchelder and Chaplin and Crombie and Devlin and Fullington and Graham and McIntyre and Würtele, equal ; Campbell and Drysdale and Hamilton (A.M.) and Higgins and Johnson and Kent and Lawrence and Mundy, equal ; Keyes and LeMaistre and Marler and McDougall (C.H.) and Piché and Sutherland (D.H.), equal ; Crichton and Marrotte and McCloskey and McMurtry and Sheely and Sullivan, equal ; Atkinson and Beaubien and Blumenthal and Browne and Cole (G.E.) and Davis and Greey, equal ; Barclay and Cardew and Carlyle and Kemp, equal ; Baker and Hodgson and Martin and Price and Webster and Wilson, equal ; Hersey and Roffey and Sutcliffe, equal ; Fraser (D.M.) and Hogan and McCarthy, equal. *Class III.*—Gilmour (R.B.) and Williamson.

STRUCTURAL DESIGNING.

OURTH YEAR.—*Class I.*—Blanchard and Clement, equal ; Gagnon. *Class II.*—Anderson and McConkey, equal ; Patterson,(F.). *Class III*—Riddell.

SUMMER WORK (ENGLISH).

SECOND YEAR.—*Class II.*—Cooper, Brown ; Conklin and Hall, equal ; Forman and Keith, equal ; Denne and Jones and McKay, equal ; Peaslee ; McDonald and McKergow, equal ; Boright and Gale, equal. *Class III.*—Blatch ; Cameron and Graham and Richards, equal ; James, Musgrave (W.N.), Kendall ; Roberts and Trimingham, equal ; Musgrave (R.).

SUMMER WORK (ESSAYS).

FOURTH YEAR —*Class I.*—Burson, DeBlois, Coussirat and Maclaren, (J. H.), equal ; Blanchard and Clement and Edwards and Schwitzer, equal ; Galbraith and Howard and Labatt, equal. *Class II.*—Archer and Glassco and Palmer, equal ; Burwell and Frechette and Gagnon and Hampson and Ritchie, equal ; Cameron and Ogilvie and White, equal ; Fraser, Lowden. *Class III.*—Tupper and Flint, equal ; Pyke ; Taylor and Ward, equal ; Forman and Higman, equal ; Lloyd, McKenzie.

THIRD YEAR.—*Class I.*—Sterns, Corless ; Dupuis and Fry and Heaman and Scott, equal ; Addie and Beck and Borden and Campbell and Dunfield and Robertson and Smith (G. M.), equal. *Class II.*—Baird ; Bigger and McBride, equal ; Coulson and Edgar and De Pencier and Franklin and Jackson and Pearson, equal ; Mackay and Newton and Porcheron and Sewell, equal. *Class III.*—Hicks and Murphy, equal ; Cape and Smith (J. M.), equal.

SURVEYING.

THIRD YEAR.—*Class I.*—Corless, Heaman, Robertson. *Class II.*—Bigger, DePencier, Borden. *Class III.*—Beck, Coulson, Maclaren (G), McBride.

SECOND YEAR.—*Class I.*—Haffner, Lucas, Hall. *Class II.*—Egleson and Pemberton, equal; Cooper, Gale, Kendall, Richards; Jones and Tilt, equal; Rowlands, Boright, Ross. *Class III.*—Graham, Cohen, Morse, Cameron, Brainerd, Musgrave (R.), Stovel, Langley, Lockerby, * Lambart.

SURVEYING FIELD WORK.

SECOND YEAR.—*Class I.*—Musgrave (R.), Jones; Boright and Hall, equal; Cooper and Gale, equal; Kendall; Graham and Langley and Lucas and Richards, equal. *Class II.*—Cohen, Cameron; Landry and Morse, equal; Pemberton and Rowlands, equal; Tilt, Lambart. *Class III.*—Lockerby and McLeod and Robillard, equal; Vallières de St. Réal.

THEORY OF STRUCTURES.

FOURTH YEAR.—*Class I.*—Blanchard, Clement. *Class II.*—McConkey. *Class III.*—Gagnon; Anderson and Patterson (C.), equal.

THIRD YEAR.—*Class I.*—Corless, Smith (G. M.), Robertson, Franklin Sterns, Maxwell. *Class II.*—Scott, Bigger, Heaman, Smith (J.M.) De Pencier, Fry, Mackay, Jackson, Borden; Dunfield and Murphy equal; Hicks, Addie, Edgar. *Class III.*—McBride, Baird, Coulson, Green, Peck, Newton.

THERMODYNAMICS.

FOURTH YEAR.—(*Electrical Engineering Course*).—*Class I.*—Burson and Maclaren, equal. *Class II.*—Boyd and Glassco, equal; Scott; Ward and Howard, equal. *Class III.*—Taylor, Higman, Lloyd, Forman.

Mechanical Engineering Course.—*Class I.*—Schwitzer, Hampson. *Class II.*—Cameron; Burwell and Lowden, equal. *Class III.*—Wilson, Coussirat.

THIRD YEAR.—*Class I.*—Franklin and Maxwell and Sterns, equal; Scott, Robertson. *Class II.*—Corless, Smith (G.M.); Heaman and Smith (J.M.), equal; De Pencier, Dunfield, MacKay, Baird. *Class III.*—Hicks, Addie; Bigger and Jackson, equal; McBride and Murphy, equal; Maclaren (F.H.); Fry and Newton, equal; Coulson; Beck and Borden and Brecken, equal; Maclaren (G.M.).

THESES.

FOURTH YEAR. (*Electrical Engineering Course*) *Class I.*—Maclaren (J. H.) and Burson and Taylor, equal; Coussirat and Glassco and Howard, equal; Walker (B. Sc.) and Smith (B Sc.), equal; Sise and Neville (B. Sc.) and Wenger (B. A. Sc.), equal; Boyd and Lloyd and Ward, equal. *Class III.*—Forman and Higman and Scott, equal.

TRANSPORTATION.

FOURTH YEAR.—(*Mining Engineering Course*) *Class I.*—Edwards. *Class II.*—Archer, Ritchie, Galbraith, Fraser (D. C.); Flint and Ogilvie, equal; Frechette, Tupper. *Class III.*—Palmer, White, McKenzie.

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* *Supplemental in Problems.*

Faculty of Medicine.

FOURTH YEAR (GRADUATING CLASS.)

HONOURS.

HOLMES GOLD MEDAL, for highest aggregate in all subjects forming the McGill Curriculum.

R. H. KER, B.A., of Montreal.

FINAL PRIZEMEN, for highest aggregate in the Fourth Year subjects.

J. BRUCE, B.A., of Moncton, N.B.

CLEMESHA PRIZE, for Clinical Therapeutics.

L. F. ROBERTSON, B.A., of Stratford, Ont.

McGILL MEDICAL SOCIETY SENIOR PRIZES,

1.—H. M. LITTLE, B.A., of London, Ont.

2.—C. K. RUSSEL, B.A., of Montreal, Que.

HONOURS IN AGGREGATE OF ALL SUBJECTS.

1. Bruce, J., B.A.
2. Ker, R. H., B.A.
3. Robertson, L. F., B.A.
4. Penner, E., B.A.
5. Collison, H., McN.
6. Howard, A. C. P., B.A.
7. Mackay, M., B.A.
8. Campbell, R. P. B.A.
9. Leggett, T. H.
10. Egan, W. J.
11. Goodall, J. R., B.A.
12. Martin, E. A.

HONOURS IN MEDICINE AND CLINICAL MEDICINE.

1. Robertson, L. F., B.A.
2. Ker, R. H., B.A.
3. Bruce, J., B.A.
4. Mackay, M., B.A.
5. Howard, A. C. P., B.A.
6. Penner, E., B.A.
7. Collison, H., McN.
8. White, E. H., B.A.
9. George J. D.
10. Hope, J. T.
11. Richards, B.A.

HONOURS IN SURGERY.

1. Bruce, J., B.A.
2. Goodall, J. H., B.A.
3. Martin, E.A.
4. Collison, J.
5. Ker, R. H., B.A.
   Newcombe, W. E.
   Robertson, L. F., B.A.
8. Howard, A. C. P., B.A.
9. Egan, W. J.
   McDonald, C. A.
11. George, J. D.
    Wilson, J. J.
13. Campbell, R. P., B.A.
    Leggett, T. H.
15. Browne, J. G., B.A.
    Jackson, G. F.
    Robertson, C. G.
18. Collison, H., McN.
19. Winter, D. E.
20. Redon, L. H., B.A.
21. Mullally, E. J.
22. Johnson, A.
    Rogers, H. B.
25. Robidoux, L. E., B.A.
    Wyman, H. B.
27. Gardner, L., B.A.
    Mackay, M., B.A.
29. Dalton, C. H.
    Jones, S.
31. Duncan, J. W.
    Wiley, B. E.
33. Penner, E., B.A.
    Russel, C. K., B.A.
35. Roberts, J.

HONOURS IN CLINICAL SURGERY.

1. Bruce, J., B.A.
   Stewart, C. J.
3. Ker, R. H., B.A.
4. Howard, A. C. P., B.A.
   Kendall, A. L.
   Leggett, T. H.
   Martin, E. A.
   Moore, J. C., D.V.S.
9. Newcombe, W. E.
10. Egan, W. J.
    Fuller, A. T., B.A.
12. Little, H. M., B.A.
    Mackay, D. S.
14. Campbell, R. P., B.A.
    Mackay, M., B.A.
    Mullally, E. J.
    Penner, E., B.A.

HONOURS IN OBSTETRICS.

1. Ker, R. H., B.A.
2. Egan, W. J.
3. Collison, H.McN.
   Collison, J.
5. Robertson, L. F., B.A.
6. Penner, E., B.A.
7. Campbell, R. P., B.A.
8. Fuller, A. T., B.A.

HONOURS IN GYNÆCOLOGY.

1. Robertson, C. G.
2. Stewart, C. J.
3. Bruce, J., B.A.
4. Penner, E., B.A.
5. Goodall, J. R., B.A.
6. Egan, W. J.
   Ker, R. H., B.A.
8. Fuller, A. T., B.A.
   Leggett, T. H.
   Robidoux, L. E., B.A.
10. Ellis, R. L.

HONOURS IN GYNAECOLOGY.—*Continued.*

12. Wyman, H. B., B.A.
13. Duncan, J. W.
14. Dalton, C. H.
Gardner, R. L., B.A.
Wiley, B. E.
17. Campbell, R. P., B.A.
18. Collison, H., McN.
19. Mackay, M., B.A.
Robertson, L. F., B.A.
21. Browne, J. G., B.A.
22. Howard, A. C. P., B.A.
23. Butler, P. E.
Fleming, J. E.
25. Jackson, G. F.
26. Martin, E. A.
Richards B.A.
28. Russel, C. K., B.A.
29. McDonald, E. E.
30. Roberts, J.
31. MacNeill, J. W.
32. Macpherson, C.
Mullally, E. J.
34. George, J. D.
35. Newcombe, W. E.
Shearer, R. L.

HONOURS IN OPHTHALMOLOGY.

1. Bruce, J., B.A.
2. Mackay, M., B.A.
3. Goodall, J. R., B.A.
4. Campbell, R. P., B.A.
5. Browne, J. G., B.A.
6. Moore, J. C., D.V.S.
Stevenson, J., B.A.
8. Hope, J. T.
Ker, R. H., B.A.
10. Ellis, R. L.
Fleming, J. E.
12. George, J.D.
Jackson, G. F.
Learmonth, G. E., B.A.

HONOURS IN PATHOLOGY.

1. Bruce, J. R., B.A.
2. Ker, R. H. B.A.
Penner, E., B.A.
4. Egan, W. J.
5. Goodall, J. R., B.A.
Martin, E. A.
7. Jackson, G. F.
8. Howard, A. C. P., B.A.
Richards, B.A.
10. Little, H. M., B.A.
Robertson, L. F., B.A.
12. Mackay, M., B.A.
Newcombe, W. E.
Robertson, C. G.
Rogers, H. B.

PASSED FOR THE DEGREE OF M.D., C.M.

Bayfield, T. F.. .. .. Charlottetown, P.E.I.
Belanger, E. R. .. .. Ottawa, Ont.
Blake, J. J.. .. .. Charlottetown, P.E.I.
Browne, J. G., B.A. .. .. Montreal, Que.
Bruce, J., B.A.. .. .. Moncton, N. B.
Butler, P. E. .. .. Milltown, N.B.
Campbell, R. P., B.A.. .. .. Westmount, Que.
Carlyle, D. A. .. .. Morewood, Ont.

Cartwright, C. .. .. Kingston, Ont.
Coates, H. W. .. .. Bass River, N.B.
Collison, H. Mc.N. .. .. Dixon's Corners, Ont.
Collison, J. .. .. Dixon's Corners, Ont.
Crang, F. W. .. .. Toronto, Ont.
Dalton, C. H. .. .. Tignish, P.E.I.
Donaldson, A. S. .. .. Brockville, Ont.
Duncan, J. W. .. .. Montreal, Que.
Egan, W. J. .. .. Sydney Mines, N.S.
Ellis, R. L. .. .. Youghall, N.B.
Fleming, J. E. .. .. North Rustico, P.E.I.
Fuller, A. T., B.A. .. .. Truro, N.S.
Gardner, R. L., B.A. .. .. Brockville, Ont.
George, J. D. .. .. Redwood, N.Y., U.S.A.
Goodall, J. R., B.A. .. .. Ottawa, Ont.
Harley, R. J. O. .. .. Cheshire, Eng.
Hope, J. T. .. .. Glen Robertson, Ont.
Howard, A. C. P., B.A. .. .. Montreal, Que.
Hunter, E N. McL. .. .. Merrimac, Mass, U.S.A.
Jackson, G. F. .. .. Brockville, Ont.
Johnson, R. DeL., B.A. .. .. Montreal, Que.
Johnston, A. .. .. Leeds, Que.
Johnston, J. L. .. .. Martintown, Ont.
Jones, J. H. .. .. Brockville, Ont.
Jones, Sydney, B.A. .. .. Cleveland, Ohio, U.S.A.
Kendall, A. L. .. .. Vancouver, B.C.
Ker, R. H., B.A. .. .. Montreal, Que.
Lawlor, F. E. .. .. Dartmouth, N.S.
Learmonth, G. E., B.A. .. .. Westmount, Que.
Leggett, T. H. .. .. Ottawa, Ont.
Little, H. M., B.A. .. .. London, Ont.
Lunney, T. H. .. .. St. John, N.B.
Mackay, D. S. .. .. Reserve Mines, N.S.
Mackay, M., B.A. .. .. Montreal, Que.
Mackenzie, S. D. .. .. Sarnia, Ont.
Macneil, J. W. L. .. .. Kensington, P.E.I.
Macpherson, C. .. .. St. John's, Nfld.
McDonald, C. A. .. .. Milltown, N.B.
McDonald, E. E. .. .. Fort Qu'Appelle, N.W.T.
Martin, E. A. .. .. Kemptville, Ont.
Meighen, W. A. .. .. Perth, Ont.
Millar, S. .. .. South Dunham, Que.
Miller, G. H. S. .. .. Alexandria, Ont.
Moore, J. C., D.V.S. .. .. St. Chrysostome, Que.

Morgan, A. D. .. .. Nanaimo, B.C.
Mullaly, E. J. .. .. Souris P.E.I.
Newcombe, W. E. .. .. Vancouver, B.C.
Niven, J. K. .. .. London, Ont
O'Sullivan, M T .. .. Glace Bay, C.B.
Paterson, A., B.A. .. .. Montreal, Que.
Penner, E., B.A... .. .. Gretna, Man.
Pittis, H.. .. .. Plainfield, N.J., U.S.A.
Redon, L. H., B.A. .. .. Victoria, B.C.
Richards, B. A. .. .. Yarmouth, N.S.
Roberts, J.. .. .. Hamilton, Ont.
Robertson, C. G... .. .. Hawkesbury, Ont.
Roberston, L. F., B.A.. .. .. Stratford, Ont.
Robertson, R. D.. .. .. St. John, N.B.
Robidoux, L. E., B.A... .. .. Shediac, N.B.
Rogers, H. B... .. .. Peterboro, Ont.
Russel, C. K., B.A. .. .. Montreal, Que.
Russell, E. M... .. .. Springfield,Mass.,U.S.A.
Rutherford, C. A. .. .. Waddington, N.Y., U.S.A.
Ryan, W. T., B.A. .. .. Fredericton, N.B.
Sanders, C. W. .. .. Kemptville, Ont
Shearer, C. .. .. Montreal, Que.
Shearer, R. L.. .. .. Kelso, Que.
Simpson, A. S. .. .. Bay View, P.E.I.
Simpson, E. G. W., B.A... .. .. Lennoxville, Que.
Snyder, A. E. W.. .. .. Coaticooke, Que.
Stentaford, G. L. .. .. Heart's Content, Nfld.
Stevenson, J., B.A. .. .. Montreal, Que.
Stewart, C. J... .. .. Russell, Ont.
Stewart, C. A.. .. .. Dunvegan, Ont.
Taylor, D. A. .. .. Havelock, N.B.
Taylor, W. L.. .. .. Waterloo, Que.
Ward, J. A.. .. .. Lewiston, Maine, U.S.A.
White, E. H., B.A. .. .. Montreal, Que.
Wiggin, W. I.. .. .. Lowell, Mass,. U.S.A.
Wiley, B. E. .. .. Fredericton, N.B.
Williams, W. .. .. Remsen, N.Y., U.S.A.
Wilmot, LeB. B.. .. .. Oromocto, N.B.
Wilson, J. J. .. .. Montreal, Que.
Winter, D. E. .. .. Montreal, Que.
Wyman, H. B., B.A. .. .. Chute a Blondeau, Ont.

ADVANCED COURSE IN LEGAL MEDICINE.

The following graduates having attended the Advanced Course in specialized medico-legal work during the past session and having passed examinations in the same, are entitled to special certificates.

Collison, H. McN.
Collison, J.
Egan, W. J.
Hope, J. T.
Hunter, E. N. McL.
Johnston, J. A.
Kendall, A. L.
Little, H. M., B.A.
Lunney, T. H.
O'Sullivan, M. T.
Robertson, C. G.
Stewart, C. J.
Wiggin, W. I.
Williams, W.
Wilson, J. J.

THIRD YEAR.

THIRD YEAR PRIZEMAN,

R. McL. Van Wart, B.A., of Fredericton, N.B

SOUTHERLAND MEDALLIST,

R. McL. Van Wart, B.A., of Fredericton, N.B.

HONOURS IN AGGREGATE OF ALL SUBJECTS.

1. VanWart, R. McL., B.A.
2. Paterson, R. C., B.A.
3. Campbell, A.
4. Dixon, J. D., B.A.
5. Dixon, W. E., B.A.
6. Gardner, W. A., B.A.
7. Eastman, E. B.
8. Manchester, J. W.
9. Byers, J. R.
10. McKenzie, J. B., B.A.

HONOURS IN HYGIENE AND BACTERIOLOGY.

1. VanWart, R. McL., B.A.
2. Gardner, W. A., B.A.
3. Byers, J. R.
4. Eastman, E. B.
5. Campbell, A.
6. Lidstone, A. E.
7. Dixon, J. D., B.A.
8. MacKinnon, G. E. L.
9. Green, F. W.
10. Moffatt, G.
11. Morse, W. R., B.A.
12. Ames, C. A.
13. McGibbon, D.
14. Mason, F. C.
15. Cox, R. B.
16. Hyatt, E. A., B.Sc.
    Stockwell, H. K.

HONOURS IN PHARMACOLOGY AND THERAPEUTICS.

1. VanWart, R. McL., B.A.
2. Dixon, J. D., B.A.
   Paterson, R. C., B.A.
4. Campbell, J. A. E., B.A.
   Leney, J. M., B.A.
6. Campbell, A.
   Dixon, W. E., B.A.
   Ship, M. L., B.A.
9. Gardner, W. A., B.A.
   Moffatt, G.
11. McNeill, J. F.
    Manchester, J. W.
13. McGibbon, S.
14. Mothersill, G. S.
15. Carter, W. LeM., B.A.
    McKee, W. E.
    McKenzie, J. B., B.A.
18. Byers, J. R.
    Mason, J. L. D., B.A.
    Menzies, J. E.
    Walker, H., Jr., B.A.
22. Peters, O. R.

HONOURS IN OBSTETRICS.

1. VanWart, R. McL., B.A.
2. Hopkins, C. W.
3. Forster, J. F. C.
4. Stockwell, H. K.
5. Paterson, R. C., B.A.
6. Christie, F. J.
   Ferguson, W. H., B.A.
   Mothersill, G. S.
9. Hyatt, E. A., B.Sc.
10. Campbell, A.
    Johnson, J. A., B.A.
    Lidstone, A. E.
    Macnaughton, J. A.
14. Curren, L. M.
    Folkins, H. G.
    Peters, O. R.
    Ship, M. L., B.A.
18. Campbell, J. A. E., B.A.
    Dorion, W. A.
    Leney, J. M., B.A.
    Morse, W. R., B.A.
    Smith, T. W.
    Williams, R. W.
24. Ames, C. A.
    Dixon, W. E., B.A.
    Grant, W. W.
    Hollingsworth, J. E.
    Pavey, H. L.

HONOURS IN CLINICAL SURGERY.

1. Dixon, J. D., B.A.
   Mothersill, G. S.
   Paterson, R. C., B.A.
4. Coleman, C. E.
5. Ames, C. A.
   Cram, W. J.
   VanWart, R. McL., B.A.
8. Dixon, W. E., B.A.
   Johnson, J. A., B.A.
   McGibbon, D.
   Mason, E. G.
   Saunders, W. E.
   Ship, M. L., B.A.
14. Baillie, S.A., B.A.
    Byers, J. R.
    Campbell, A.
    Campbell, J. A. E., B.A.
    Colby, J. C., B.A.
    Dorion, W. A.
    Eastman, E. B.
    Gardner, W. A., B.A.
    McGibbon, S.
    McKenzie, J. B., B.A.
    Morse, W. R., B.A.
    Pickard, L. N.
    Smith, T. W.
    Walker, H., Jr., B.A.

HONOURS IN CLINICAL CHEMISTRY.

1. McKee, W. E.
   Moffatt, G.
   Paterson, R. C., B.A.
4. Baillie, S. A.
5. Chirstie, F. J.
   Gardiner, R. J.
   Lidstone, A. E.
   Mackinnon, G. E. L.
9. Codrington, R. F.
   Coleman, C. E.
   Evans, S.
   Hyatt, E. A., B.Sc.
   Menzies, J. E.
   Mothersill, G. S.
15. Ritchie, C. F. P. B.A.
16. Ames, A. C.
    Cantlie, F. P. L.
    Cox, R. B.
    Dixon, J. D., B.A.
    Grant, W. W.
    Johnston, G. R.
    Manchester, J. W.
    Tracy, E. A., B.A.
    VanWart, R. McL., B.A.
    Walker, H., Jr., B.A.

HONOURS IN MEDICAL JURISPRUDENCE.

1. Campbell, A.
2. Ames, C. A.
   VanWart, R. McL., B.A.
4. Curran, L. M.
5. Mackinnon, G. E. L.
6. Byers, J. R.
   Dorion, W. A.
8. Colby, J. C., B.A.
   Dixon, J. D., B.A.
   Gardner, W. A., B.A.
   Henry, C. M.
   Irwin, F.
   Maclaren, A. H., B.A.
   McKee, W. E.
   Mason, J. L. D., B.A.
   Paterson, R. C., B.A.
   Stockwell, H. K.

HONOURS IN MENTAL DISEASES.

1. Dixon, W. E., B.A.
2. Campbell, A.
   VanWart, R. McL., B.A.
4. Blair, A. K.
5. Hopkins, C. W.
   King, R., B.A.
7. McKenzie, J. B., B.A.
8. Leney, J. M., B.A.
9. Paterson, R. C., B.A.
   Ship, M. L., B.A.
11. Williams, R. G.
12. Halliday, J. LeR.
    McKee, W. E.
    Smith, T. W.
15. Christie, F. J.
16. Campbell, J. A. E., B.A.
    Hyatt, E. A., B.Sc.
    Lomas, A. J.
19. McGibbon, S.
20. Carnochan, W. L. C.
    Eastman, E. B.
    Mason, J. L. D., B.A.
    Peters, O. R.
    Turner, G. H.

HONOURS IN CLINICAL MEDICINE.

1. Manchester, J. W.
2. Gardner, W. A., B.A.
   Menzies, J. E.
   Paterson, R. C., B.A.
5. Morse, W. R., B.A.
6. McKenzie, J. B., B.A.
7. McNeill, J. F.
8. Dixon, W. E., B.A.
   VanWart, R. McL., B.A.
10. Evans, S.
11. Lomas, A. J.
    Macnaughton, J. A.
13. Dorion, W. A.
14. Peters, O. R.
15. Leney, J. M., B.A.
    Mason, E. G.
    Smith, F. W.
    Walker, H., Jr., B.A.
19. Mothersill, G. S.
20. Mason, J. L. D.
21. Ferguson, W. H., B.A.
    McGibbon, S.
23. Hollingsworth, J. E.
    Moffatt, G.
    Pickard, L. N.
26. Dixon, J. D., B.A.
    Harris, L. C.
    Lidstone, A. E.
    McKee, W. E.
    Martin, H. E.
    Mason, F. C.
    Pratt, C. M.

HONOURS IN PATHOLOGY.

1. Campbell, Alex.
2. Eastman, E. B.
3. VanWart, R. McL., B.A.
4. Ritchie, C. F. P., B.A.
5. Dixon, W. E., B.A.
   Manchester, J. W.
7. Paterson, R. C., B.A.
   Pickard, L. N.
9. Campbell, J. A. E., B.A.
   Dixon, J. D., B.A.
11. McGibbon, S.
12. Morse, W. R., B.A.
13. Byers, J. R.
    McKenzie, J. B., B.A.
15. Cox, R. B.
16. Gardner, W. A., B.A.
    Mason, J. L. D., B.A.
    Russell, E. M.
19. Christie, F. J.

PASSED THE SESSIONAL EXAMINATIONS.

Ames, C. A.
Anthony, T. B.
Baillie, S. A., B.A.
Bayfield, T. F.
Byers, J. R.
Callbeck, A. DesB.
Campbell, A.
Campbell, J. A. E., B.A.
Christie, F. J.
Colby, J. C., B.A.
Cox, R. B.
McGibbon, D.
McGibbon, S.
McKee, W. E.
McKenzie, J. B., B.A.
McNeill, J. F.
Macdonald, A. A.
Maclaren, A. H., B.A.
Macnaughton, J. A.
Macneill, J. W.
Manchester, J. W.
Mason, E. G.

Crang, F. W.
Curren L, M.
Dixon, J. D., B.A.
Dixon, W. E., B.A.
Dorion, W. A.
Eastman, E. B.
Evans, S.
Featherston, H. C.
Ferguson, W. H., B.A.
Folkins, H. G.
Forster, J. F. C.
Gardner, W. A., B.A.
Green, F. W.
Halliday, J. LeR.
Harris, L. C.
Hart, F. W., B.A.
Hollingsworth, J. E.
Hopkins, C. W.
Howard, A. C. P., B.A.
Hughes, R. E.
Hunter, E. N. McL.
Hyatt, E. A., B.Sc.
Johnson, G. R., B.A.
Johnson, J. A., B.A.
Johnson, R. DeL.
Johnston, J. L.
Jones, J. H.
Jones, N. C.
Lawlor, F. E.
Learmonth, G. E., B.A.
Leney, J. M., B.A.
Lomas, A. J.
McDonald, C. A.
McDonald, E. E.
McDonald, P. A., B.A.
Mason, J. LeD., B.A.
May, L. W.
Meighen, W. A.
Menzies, J. E.
Millar, S.
Moffatt, G.
Morgan, A. D.
Morrison, J. F.
Morse, W. R., B.A.
Mothersill, G. S.
Mullally, E. J.
Newcombe, W. E.
Niven, J. K.
O'Sullivan, M. T.
Paterson, R. C., B.A.
Pavey, H. L.
Peters, O. R.
Picard, L. N.
Pratt, C. M.
Ritchie, C. F. P., B.A.
Roberts, A. B.
Russell, E. M.
Rutherford, C. A.
Ryan, W. T.
Ship, M. L., B.A.
Simpson, S.
Smith, T. W.
Stentaford, G. L.
Stewart, C. A.
Stockwell, H. K.
VanWart, R. McL., B.A.
Walker, H., Jr., B.A.
Wilkins, F. F.
Williams, R. G.
Wilmot, LeB. B.

In addition to those whose names appear on the above list, as having passed in all the subjects of the Third Year, the following have passed in:—

MATERIA MEDICA.

Carter, W. LeM., B.A.
Codrington, R. F.
Coleman, C. E.
Cram, W. J.
Donovan, J. B.
Henry, C. M.
Igoe, O. A.
MacKinnon, G. E. L.
Martin, H. E.
Ness, W.
Tanner, C. A. H.
Tolmie, J. A.
Warren, J. G.

PATHOLOGY.

Blair, A. K.
Cantlie, F. P. L.
Carnochan, W. L. C.
Carter, W. LeM., B.A.
Codrington, R. F.
Coleman, C. E.
Cram, W. J.
Donovan, J. B.
Gardiner, R. J.
Henry, C. M.
Irwin, F.
Lidstone, A. E.
MacKinnon, G. E. L.
McGrath, R. H.
Palmer, G. H.
Saunders, W. E.
Thomas, J. W., B.A.
Tolmie, J. A.
Tracy, E. A., B.A.
Warren, J. G.

HYGIENE AND BACTERIOLOGY.

Anton, D. L.
Blair, A. K.
Blair, H. G. F.
Cantlie, F. P. L.
Carnochan, W. L. C.
Carter, W. LeM., B.A.
Codrington, R. F.
Cram, W. J.
Cullen, W. H.
Gardiner, R. J.
Grant, W. W.
Henry, C. M.
Irwin, F.
Lidstone, A. E.
MacKinnon, G. E. L.
McGrath, R. H.
Martin, H. E.
Mason, F. C.
Palmer, G. H.
Saunders, W. E.
Thomas, J. W., B.A.
Tolmie, J. A.
Tracey, E. A., B.A.
Warren, J. G.

MEDICAL JURISPRUDENCE.

Blair, A. K.
Blair, H. G. F.
Boire, W. E.
Cantlie, F. P. L.
Carnochan, W. L. C.
Carter, W. LeM., B.A.
Codrington, R. F.
Coleman, C. E.
Cram, W. J.
Crowell, B. C., B.A.
Cullen, W. H.
Gardiner, R. J.
Grant, W. W.
Henry, C. M.
Irwin, F.
King, R., B.A.
MacKinnon, G. E. L.
McGrath, R. H.
Martin, H. E.
Mason, F. C.
Ness, W.
Palmer, G. H.
Pilot, F. W. H. (written only)
Scott, W.
Tanner, C. A. H.
Thomas, J. W., B.A.
Tolmie, J. A.
Tracy, E. A., B.A.

MENTAL DISEASES.

Anton, D. L.
Blair, A. K.
Blair, H. G. F.
Cantlie, F. P. L.
Carnochan, W. L. C.
Carter, W. LeM., B.A.
Codrington, R. F.
Coleman, C. E.
Cram, W. J.
Cullen, W. H.
Gardiner, R. J.
Grant, W. W.
Henry, C. M.
Hutchinson, J. W.
Igoe, O. A.
Irwin, F.
King, R., B.A.
MacKinnon, G. E. L.
McGrath, R. H.
Martin, H. E.
Mason, F. C.
Ness, W.
O'Brien, C. W.
Palmer, G. H.
Tanner, C. A. H.
Thomas, J. W., B.A.
Tolmie, J. A.
Tracy, E. A., B.A.
Turner, G. H.

CLINICAL MEDICINE.

Anton, D. L.
Blair, A. K.
Blair, H. G. F.
Cantlie, F. P. L.
Codrington, R. F.
Coleman, C. E.
Gardiner, R. J.
Grant, W. W.
Lidstone, A. E.
McGrath, R. H.
Martin, H. E.
Mason, F. C.
Ness, W.
Saunders, W. E.
Tracy, E. A., B.A.
Warren, J. G.

CLINICAL SURGERY.

Anton, D. L.
Blair, A. K.
Blair, H. G. F.
Cantlie, F. P. L.
Carnochan, W. L. C.
Carter, W. LeM., B.A.
Codrington, R. F.
Coleman, C. E.
Cram, W. J.
Cullen, W. H.
Gardiner, R. J.
Grant, W. W.
Henry, C. M.
Igoe, O. A.
Irwin, F.
Lidstone, A. E.
MacKinnon, G. E. L.
McGrath, R. H.
Martin, H. E.
Mason, F. C.
Ness, W.
Saunders, W. E.
Symmes, C. R.
Tolmie, J. A.
Tracy, E. A B.A.

CLINICAL CHEMISTRY.

Anton, D. L.
Bishop, L. C.
Blair, A. K.
Blair, H. G. F.
Cantlie, F. P. L.
Carnochan, W. L. C.
Carter, W. LeM., B.A.
Codrington, R. F.
Coleman, C. E.
Cram, W. J.
Cullen, W. H.
Douglas, F. C.
Dowson, C. K.
Gradiner, R. J.
Grant, W. W.
Henry, C. M.
Igoe, O. A.
Irwin, F.
Lidstone, A. E.
MacKinnon, G. E. L.
McGrath, R. H.
Martin, H. E.
Mason, F. C.
Ness, W.
Palmer, G. H.
Pilot, F. W. H.
Saunders, W. E.
Scott, W.
Scriver, E. F.
Thomas, J. W., B.A.
Tolmie, J. A.
Tracy, E. A., B.A.
Warren, J. G.

OBSTETRICS.

Blair, A. K.
Blair, H. G. F.
Cantlie, F. P. L.
Carnochan, W. L. C.
Carter, W. LeM., B.A.
Cram, W. J.
Cullen, W. H.
Grant, W. W.
Henry, C. M.
Igoe, O. A.
Irwin, F.
Lidstone, A. E.
MacKinnon, G. E. L.
McGrath, R. H.
Martin, H. E.
Mason, F. C.
Ness, W.
Palmer, G. H.
Saunders, W. E.
Thomas, J. W., B.A.
Tolmie, J. A.
Tracy, E. A., B.A.

SECOND YEAR.

HONOURS.

SECOND YEAR PRIZEMAN,

E. M. McLaughlin, of Winona, Minn.

SENIOR ANATOMY PRIZE,

N. D. Parris, of Barbadoes, W.I.

McGILL MEDICAL SOCIETY JUNIOR PRIZES,

1.—J. L. D. Mason, B.A., of Montreal, Que.

2.—J. C. Colby, B.A., of Stanstead, Que.

HONOURS IN AGGREGATE OF ALL SUBJECTS.

1. McLaughlin, E. M.
2. Nelson, W. E.
3. Burns, A. S., B.A.
4. Elder, R., B.A.
5. Parris, N. D.
6. Cowperthwaite, H. H.
7. McKenzie, J. B., B.A.
8. English, J. M.
9. McCulloch, J. M.
10. Turner, G. H., B.A.

HONOURS IN PHYSIOLOGY.

1. Anderson, C. W., B.A.
2. Nelson, W. E.
3. Parris, N. D.
4. Morris, S. C.
5. Cowperthwaite, H. H.
6. Elder, R., B.A.
   McLaughlin, E. M.
8. Burns, A. S., B.A.
9. English, J. M.
10. McEwen, J. R.
11. Ells, R. H., B.A.
    King, R., B.A.
    Willmore, J. G.

HONOURS IN PRACTICAL CHEMISTRY.

1. Parris, N. D.
2. Willmore, J. G.
3. Kissane, J. W.
4. Lauchland, L. C., B.A.
   Montgomery, C. H.
6. Burns, A. S., B.A.
   Miller, V. L., B.A.
   Sellery, A. C.
9. O'Neill, J. M.
10. Briggs, J. A.
11. Cowperthwaite, H. H.
    Faulkner, J. A., B.A.
    McEachern, I. W. T.
    McIntosh, J. A.
15. Covernton, C. F.
16. Markson, S.

HONOURS IN PRACTICAL CHEMISTRY.—*Continued.*

17. Donnelly, W. H.
Forbes, R. D.
Harrison, L. L., B.A.
Kenny, R. W.
21. Anderson, C. W., B.A.
Frost, A. C.
23. Bentley, J. S.
24. Munroe, H. E.
Peterson, G. R.
26. Fyshe, J. C., A.B.
Hawker, J. E.
Langsford, A. W.
Patch, F. S., B.A.
Rehfuss, W. N.
31. Pavey, C. A.
Slack, M. R.
Taggart, E. A.

HONOURS IN HISTOLOGY.

1. Burns, A. S.
Cowperthwaite, H. H.
McCulloch, J. M.
4. McKechnie, D. W.
5. Elder, R., B.A.
Parris, N. D.
7. O'Neill, J. M.
8. Macdonald, R. St.J., B.A.
McLaren, D. D.
McLaughlin, E. M.
Maby, W. J.
Morris, S. C.
Nelson, W. E.
Rehfuss, W. N.
Secord, W. H.
Steeves, E. O.
Thomas, S. B.
18. Magee, C. F.
19. Allum, A. W.
Anderson, C. W., B.A.
Andrews, J. J.
Auston, J. B.
Church, H. C.
Croft, L. V.
Dickson, A. J., B.A.
English, J. M.
Fisher, F., B.A.
Fortin, C. E. F., B.A.
Hansen, N. C., M.A.
King, R., B.A.
Lamb, W. V.
Laurie, E., B.A.
Lyman, W. S.
Lynch, A. L.
McEachern, I. W. T.
McIntosh, J. A.
Murray, J. S.
Nelson, J. S.
Puddington, B.A.
Teitelbaum, T. A.

HONOURS IN PHARMACOLOGY.

1. Willmore, J. G.
2. McLaughlin, E. M.
3. McEwen, J. R.
4. Turner, G. H., B.A.
5. English, J. M.
6. Secord, W. H.
7. McEachern, I. W. T.
8. Burns, A. S., B.A.
9. Langsford, A. W.
McIntosh, H. H.
11. Macdonald, R. St.J., B.A.
McCulloch, J. M.
Parris, N. D.
14. Morris, S. C.
15. Laurie, E., B.A.
Nelson, W. E.
17. Cowperthwaite, H. H.
Elder, R., B.A.

HONOURS IN CHEMISTRY.

1. Nelson, W. E.
2. Auston, J. B.
3. Elder, R., B.A.
   Ells, R. H., B.A.
   Montgomery, C. H.
6. Sellery, A. C.
7. Burns, A. S., B.A.
8. McCulloch, J. M.
9. Cowperthwaite, H. H.
   Croft, L. V., B.A.
   Magee, C. F.
12. McIntosh, H. H.
13. McKechnie, D. W.
    Miller, V. L.
    Willmore, J. G.
16. Thomas, S. B.

HONOURS IN ANATOMY.

1. Nelson, W. E.
2. Burns, A. S., B.A.
3. Elder, R., B.A.
   McLaughlin, E. M.
5. English, J. M.
6. Parris, N. D.
7. Cowperthwaite, H. H.
8. McCulloch, J. M.
9. Freeze, E. H.
10. McEwan, J. R.
11. Rehfuss, W. N.
12. Hutchinson, J. W.
13. Morris, S. C.
    Steeves, E. O.
    Turner, G. H., B.A.

PASSED THE SESSIONAL EXAMINATIONS.

Anderson, C. W., B.A.
Andrews, J. J.
Anthony, T. B.
Auston, J. B.
Blair, A. K.
Blair, H. G. F.
Blake, J. J.
Boyd, O.
Briggs, J. A.
Burns, A. S., B.A.
Campbell, W. G.
Cantlie, F. P. L.
Chaplin, H. L. S.
Church, H. C.
Cowperthwaite, H. H.
Cumming, W. G., B.A.
Dickson, A. J., B.A.
Donnelly, W. H.
McGrath, F. C.
McIntosh, H. H.
McIntosh, J. A.
McKechnie, D. W.
McKenzie, J. B., B.A.
McLaren, D. D.
McLaughlin, E. M.
McPherson, T.
Macdonald, A. A.
Macdonald, R. St.J.
Macpherson, C.
Maby, W. J.
Magee, C. F.
Martin, H. E.
Mason, F. C.
May, L. W.
Meindl, A. G.
Mitchell, I. E.

Ebbett, L. P.
Elder, R., B.A.
Ells, R. H., B.A.
English, J. M.
Featherston, H. C.
Forbes, R. D.
Gale, W. P.
Grant, W. W.
Halliday, J. LeR.
Hansen, N. C., M.A.
Hardisty, R. H., B.A.
Hart, F. W., B.A.
Hollingsworth, J. E.
Hughes, R. E.
Hyatt, E. A., B.Sc.
Irwin, F.
Jones, N. C., B.A.
Kenny, R. W.
King, R., B.A.
Kissane, J. W.
Langsford, A. W.
Laurie, E., B.A.
Lomas, A. J.
Lynch, A. L.
McCulloch, J. M.
McDonald, S. H., B.A.
McEachern, I. W. T.
McEwen, J. R.
Montgomery, C. H.
Morris, S. C.
Moses. H. C.
Murray, J. S.
Nelson, W. E.
O'Brien, C. W., B.A.
O'Neill, J. M.
Park, A. W.
Parris, N. D.
Patch, F. S., B.A.
Pavey, H. L.
Peterson, G. R.
Rehfuss, W. N.
Ritchie, C. F.
Roberts, A. B.
Ryan, W. T.
Secord, W. H.
Steeves, E. O.
Stewart, C. A.
Strong, N. W.
Taggart, E. A.
Taylor, D. A.
Thomas, S. B.
Tracy, E. A., B.A.
Turner, G. H., B.A.
White, P. G.
White, S. G.
Williams, R. G.

In addition to those whose names appear on the above list, having passed in all subjects of the Second Year, the following have passed in:—

MATERIA MEDICA.

Allan, R.
Bishop, G. A.
Bromley, J. E.
Brooks, J. E., B.A.
Chamberlain, H. B.
Crowell, B. C.
Doyle, F. H.
Faulkner, J. A., B.A.
Fortin, C. E. F., B.A.
Freeze, E. H.
Frost, A. C.
Gilmore, C. R.
Hawker, J. E.
Hynes, W. T.
Kerr, H. H.
Lundie, J. A., B.A.
Lyman, W. S.
Munro, J. H.
Ness, W.
O'Brien, C. W., B.A.
Puddington, B.A.
Scott, W.
Wilmore, J. G.

HISTOLOGY.

Allan, R.
Allum, A. W.
Bailey, G. W.
Bishop, G. A.
Blakeman, F. W.
Bromley, J. E.
Brooks, J. E., B.A.
Cary, W. H.
Chamberlain, H. B.
Chandler, E. C.
Croft, L. V., B.A.
Dickson, W. H.
Doyle, F. H.
Fisher, F., B.A.
Fortin, C. E. F., B.A.
Freeze, E. H.
Frost, A. C.
Gillis, J. H.
Gow, R. J.
Hutchinson, J. W.
Hynes, W. T.
Inksetter, F. S.
Kerr, H. H.
Lamb, W. V.
Lundie, J. A., B.A.
Lyman, W. S.
MacKenzie, W. A.
McDiarmid, C. A.
McGuigan, J. D.
Munro, J. H.
Munroe, H. B., B.A.
Munroe, H. E.
Nelson, J. S.
Pavey, C. A.
Puddington, B. A.
Rawlings, W. T.
Robertson, W. G.
Seifert, F. W., B.A.
Shillington, R. N. W.
Slack, M. R.
Smith, C.M.
Teitelbaum, T. A.
Truax, W.
Wilmore J,. G.
Wilson, A.
Wilson, C. E.

ANATOMY.

Allan, R.
Allum, A. W.
Bailey, G. W.
Bishop, G. A.
Boulter, J. H.
Brooks, J. E., B.A.
Crosby, P. C.
Dickson, W. H.
Doyle, F. H.
Ford, W. S.
Fortin, C. E F., B.A.
Freeze, E. H.
Frost, A. C.
Gilmour, C. R.
Gow, R. J.
Horsfall, F. L., B.A.
Hutchinson, J. W.
Lamb, W. V.
Lyman, W. S.
MacKenzie, W. A.
McGuigan, J. D.
Munro, J. H.
Munroe, H. E.
Nelson, J. S.
Puddington, B.A.
Scott, W.
Seifert, F. W., B.A.
Shillington, R. N. W.
Slack, M. R.
Smith, C. M.
Truax, W.
Wilson, A.
Wilson, C. E.

PHYSIOLOGY.

Allan, R.
Allum, A. W.
Bailey, G. W.
Bishop, G. A.
Boulter, J. H.
Carnochan, W. L.
Chandler, E. C.
Croft, L. V., B.A.
Dowson, C. K.
Doyle, F. H.
Freeze, E. H.
Gillis, J. H.
Hutchinson, J. W.
Hynes, W. T.
Kerr, H. H.
Lyman, W. S.
McDiarmid, C. A.
McGuigan, J. D.
Munroe, H. B., B.A.
Munroe, H. E.
Netten, P. E.
Puddington, B.A.
Slack, M. R.
Smith, C. M.
Truax, W.
Wilmore, J. G.
Wilson, A.

CHEMISTRY.

Ainley, W. E., B.A.
Anton, D. L. S.
Blakeman, F. W.
Brooks, J. E., B.A.
Chandler, E. C.
Covernton, C. F.
Croft, L. V., B.A.
Fisher, F., B.A.
Frost, A. C.
Gow, R. J.
Harrison, L.L., B.A.
Kerr, H. H.
Lamb, W. V.
Lauchland, L. C., B.A
Lundie, J. A., B.A.
McDiarmid, C. A.
Markson, S.
Miller, V. L., B.A.
Munroe, H. B., B.A.
Munroe, H. E.
Murphy, H. H.
Nelson, J. S.
Sellery, A. C.
Slack, M. R.
Smith, C. M.
Snetsinger, H. W.
Truax, W.
Willmore, J. G.
Wilson, A.

PRACTICAL CHEMISTRY.

Allan, R.
Allum, A. W.
Bentley, J. S., B.A.
Blakeman, F. W.
Bromley, J. E.
Brooks, J. E., B.A.
Chamberlain, H. B.
Covernton, C. F.
Croft, L. V., B.A.
Crosby, P. C.
Doyle, F. H.
Faulkner, J. A., B.A.
Fisher, F., B.A.
Ford, W. S.
Fortin, C. E. F.
Freeze, E. H.
Frost, A. C.
Fyshe, J. C., A.B.
Gillis, J. H.
Gow, R. J.
Harrison, L. L., B.A.
Hawker, J. E.
Hynes, W. T.
Inksetter, F. S.
Kerr, H. H.
Lamb, W. V.
Lauchland, L. C., B.A
Lundie, J. A., B.A.
Lyman, W. S.
MacKenzie, W. A.
McDiarmid, C. A.
McGuigan, J. D.
McNeill, W. C.
Markson, S.
Miller, V. L., B.A.
Munro, J. H.
Munroe, H. B., B.A.
Munroe, H. E.
Murphy, H. H.
Nagle, S. M.
Nelson, J. S.
Ness, W.
Pavey, C. A.
Puddington, B. A.
Robertson, W. G.
Seifert, F. W., B.A.
Sellery, A. C.
Slack, M. R.
Smith, C. M.
Sweeney, J. L.
Truax, W.
Willmore, J. G.
Wilson, A.
Wood, H. G.

FIRST YEAR.

HONOURS.

FIRST YEAR PRIZEMAN,

J. A. NUTTER, B.A., of Montreal.

JUNIOR ANATOMY PRIZE,

J. L. ROBINSON, of St. Mary's, Ont.

HONOURS IN AGGREGATE OF ALL SUBJECTS.

1. Nutter, J. A., B.A.
2. McIntosh, L. deC.
3. Robinson, J. L.
4. Sellery, A. C.
5. Fyshe, J. C., A.B.
6. Dillon, W. P.
7. Wood, W. H.
8. Chipman, W. W.
   Lippiatt, H. T.
10. McLachlan, D. C.
11. Martin, J. C.
12. Miller, V. L., B.A.
13. Harrison, L. L., B.A.
    Reford, L. L.
15. Gillis, J. E.
16. Charman, F. D.

HONOURS IN CHEMISTRY.

1. Lippiatt, H. T.
   Nutter, J. A., B.A.
3. Dillon, W. P.
4. McIntosh, L. deC.
5. Miller, V. L., B.A.
6. Cook, W. J.
7. Bentley, J. S., B.A.
   Chipman, W. W.
9. Martin, J. C.
   Reford, L. L.
11. Alford, H. J.
    Wood, W. H.
13. Harrison, L. L., B.A.
    Sellery, A. C.
15. Keys, M. J.
16. Charman, F. D.
    Coffin, J. W.
    McLachlan, D. C.
19. Dunn, J. F.
20. Blanchet, S. F. N.
    Crack, I. E., B.A.
    Faulkner, J. A., B.A.
    Mackenzie, A. B.
    Wilson, O. M.
25. Fyshe, J. C., A.B.
    Geddes, R. W., B.A.
    Yeo, I. J.
28. Ainley, L. T., B.A.
    Judson, A. H.
    McKenty, F.

HONOURS IN BACTERIOLOGY.

1. Nutter, J. A., B.A.
2. Fyshe, J. C., A.B.
3. Lippiatt, H. T.
4. Robinson, J. L.
5. McIntosh, L. deC.
   Reford, L. L.
7. Chipman, W. W.
   Gillis, J. E.
   Sellery, A. C.
10. Dillon, W. P.
    Lauchland, E. C., B.A.
12. Styles, W. A. L.
13. Harrison, L. L., B.A.
14. Martin, J. C.
15. McLachlan, D. C.

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1. Nutter, J. A., B.A.
   Shaw, D.
3. Robinson, J. L.
4. Martin, J. C.
5. Fyshe, J. C., B.A.
6. McIntosh, L. deC.
7. Chipman, W. W.
8. Dillon, W. P.
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10. McLeod, J. A.
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12. Douglas, E. D., B.A.
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16. Coffin, J. W.
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19. Charman, F. D.
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HONOURS IN PHYSIOLOGY.

1. Nutter, J. A., B.A.
   Wood, W. H.
3. McIntosh, L. deC.
4. Sellery, A. C.
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13. Dunn, J. F.
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15. Ford, H. S.
16. Blanchet, S. F. N.
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1. Faulkner, J. A., B.A.
   Quain, B. P.
   Robinson, J. L.
4. McLachlan, D. C.
5. Cook, W. J.
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12. Gibson, G. M.
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14. Blanchet, S. F. N.
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    Harrison, L. L., B.A.
    Johnson, J. G. W., B.A.
    Martin, J. C.
    Wilson, O. M.
    Wood, W. H.
24. Chipman, W. W.
    Crowell, B. C., B.A.
    Eaton, C. E.
    Hotchkiss, E. A.
28. Ainley, L. T.
    Crack, I. E., B.A.
    Douglas, E. D., B.A.
    Dunn, J. F.
    Gillis, J. E.
    Lawson, G. E.
    Lippiatt, H. T.
    Miller, C.
    Reford, L. L.
    Stewart, J. A.

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1. Gillis, J. E.
   Miller, V. L., B.A.
3. Wood, W. H.
4. Kerr, H. H.
   McKenty, F.
6. Robinson, J. L.
   Sellery, A. C.
8. Chipman, W. W.
   Dillon, W. P.
   Lippiatt, H. T.
11. Stewart, J. A.
12. Nutter, J. A., B.A.
13. Coffin, J. W.
    Geddes, R. W., B.A.
    McIntosh, L. deC.
    Wright, G. A.
17. Willmore, J. G.
18. Fyshe, J. C., A.B.
19. Dunn, J. F.
    Lauchland, L. C., B.A.
    Lincoln, W. A.
    McLachlan, D. C.
    Reford, L. L.
    Rogers, J. T., B.A.
    Warwick, W.
    Yeo, I. J.
27. Gibson, G. M.
    Hogan, F. J.
    Quain, B. P.
    Rankin, A. C.
    Richardson, C. A.
    Sims, H. A.
    Yorston, F. P., M.A.

HONOURS IN PRACTICAL CHEMISTRY.

1. Bentley, J. S., B.A.
   Coffin, J. W.
   Fyshe, J. C., A.B.
   Geddes, R. W., B.A.
   Quain, B. P.
   Robinson, J. L.
   Yeo, I. J.
8. Greenwood, W. T.
   Hand, W. T.
   McIntosh, L. deC.
   McKenty, F.
   Price, J.
   Richardson, C. A.
   Sellery, A. C.
15. Faulkner, J. A., B.A.
    Lincoln, W. A.
17. Laughlan, L. C., B.A.
    Miller, V. L., B.A.
    Wood, W. H.
20. Charman, F. D.
    McLeod, W. A.
    Warwick, W.
23. Hotchkiss, E. A., B.A.
    McLachlan, D. C.
25. Dillon, W. P.
    Douglas, E. D., B.A.
    Gilroy, J. R.
    Mackenzie, A. B.
    McInerney, D. C.
30. Hogan, F. J.
    Stewart, J. A.

PASSED THE SESSIONAL EXAMINATIONS.

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Losier, A. J.
McDonald, S. H., B.A.
McGeachy, J. A. M.
McGrath, F. C.
McInerney, D. C.
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McKenty, F.
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Martin, J. C.
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Muir, K. C.
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Murphy, H. H.
Nagle, S. M.
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Dunn, J. F.
Eaton, C. E.
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Faulkner, J. A., B.A.
Featherston, H. C.
Fisher, E. M.
Fisher, F., B.A.
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Gibson, G. M.
Gibson, R.
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Gillis, J. H.
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Gormely, J. C.
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Grant, N. P.
Greenwood, W. T.
Gurd, R. D.
Harrison, L. L., B.A.
Hawker, J. E.
Hogan, F. J.
Hotchkiss, E. A.
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Judson, A. H.
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Price, J.
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Rogers, J. T., B.A.
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Sims, H A.
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Smith, C. M.
Smith, W. A., B.A.
Stewart, J. A.
Warren, J. G.
Warwick, W.
Waterman, C.
Wigle, C. A.
Willmore, J. G.
Wilson, O. M.
Winder, J. B., B.A.
Winfrey, W., B.L.
Wood, H. G.
Wood, W. H.
Yeo, I. J.
Yorston, F. P., M.A.

In addition to those whose names appear on the above list, as having passed in all subject of the First Year, the following have passed in:—

HISTOLOGY.

Bleasdell, W. A.
Dalton, J. T.
Lacasse, L. J.
MacKid, L. S.
McDonald, J. A.
McNeill, W. C.
Pruyn, W. G.
Sweeney, J. L, B.A..
Wotherspoon, H.
Wright, G. A.

ANATOMY.

Billings, W. H.
Cameron, A. B.
Davidson, H. D.
Gill, F. D. B.
Gunn, A. K.
Hand, W. T.
Hughton, M.
Hunter, J. D.
Inksetter, F. S.
Lacasse, L. J.
MacCullum, J. D. G.
MacKid, L. S.
McLeod, W. A.
McMicking, A. E. T.
McNeill, W. C.
Raftery, C. R.
Rilance, C. D.
Sweeney, J. L., B.A.
Willmore, J. G.
Wright, G. A.
Young, G. J.

PHYSIOLOGY.

Billings, W. H.
Boulter, J. H.
Davidson, H. D.
Gill, F. D. B.
Hand, W. T.
Hughton, M.
Hunter, J. D.
Lacasse, L. J.
McDonald, J. A.
McDonald, J. C.
McLeod, W. A.
McNeill, W. C.
MacKid, L. S.
Margolese, O.
Pruyn, W. G.
Ramsay, W. A.
Rilance, C. D.
Sibbald, J. P. M.

CHEMISTRY.

Bleasdell, W. A.
Billings, W. H.
Davidson, H. D.
Gill, F. D. B.
Hand, W. T.
Hughton, M.
Hunter, J. D.
McDonald, J. C.
McLeod, W. A.
McMicking, A. E. T.
Margolese, O.
Rilance, C. D.
Sibbald, J. P. M.
Styles, W A. L.
Wotherspoon, H
Wright, G. A.

PRACTICAL CHEMISTRY.

Billings, W. H.
Cameron, A. B.
Dalton, J. T.
Davidson, H. D.
Gill, F. D. B.
Gunn, A. K.
Hand, W T.
Hare, W. G
Hughton, M.
Hunter, J. D.
Lacasse, L. J.
MacKid, L. S.
McDonald, J. C.
McLeod, W. A.
McMicking, A. E. T.
Margolese, O.
Raftery, C. R.
Rilance, C. D.
Styles, W. A. L.
Wotherspoon, H.
Wright, G. A.
Young, G. J.

BIOLOGY.

Covernton, C. F.
Dalton, J.
Davidson, N. D.
Froomis, L. E.
Hare, W. G.
Hughton, M.
Humphrey, G. A.
Hunter, J. D.
Inksetter, F. S.
Lacasse, L. J.
Macdonald, J. P.
McCormick, J. P.
McDonald, J. A.
McDonald, J. C.
McDougall, W. L.
McLeod, W. A.
Margolese, O.
Pruyn, W. G.
Shaw, D.
Sibbald, J. P. M.
Styles, W. A. L.
Wright, G. A.
Young, G. J.

BOTANY.

Bleasdell, W. A.
McNeill, W. C.
Scott, W.

BACTERIOLOGY.

Pruyn, W. G.
Styles, W. A. L.

Faculty of Comparative Medicine and Veterinary Science.

GRADUATING CLASS.

PASSED FOR THE DEGREE OF D.V.S.

O. T. Amyrauld. J. T. Rork. D. S. Tamblyn.

PRIZES.

Veterinary Medicine and Surgery—O. T. Amyrauld.
Cattle Pathology—D. S. Tamblyn.
Materia Medica—Geo. A. Kennedy.
Anatomy—A. D. Harrington.
Physiology—A. D. Harrington.
Chemistry—A. D. Harrington.
Extra Prizes—For the best essay read before the Veterinary Medical Association: 1st, J. T. Rork; 2nd, D. S. Tamblyn; 3rd, O. T. Amyrauld.

STANDING OF THE SEVERAL SUBJECTS.

VETERINARY MEDICINE AND SURGERY.—THIRD YEAR.

O. T. Amyrauld. J. T. Rork. D. S. Tamblyn.

CATTLE PATHOLOGY.—THIRD YEAR.

D. S. Tamblyn. J. T. Rork. O. T. Amyrauld.

PATHOLOGY.—THIRD YEAR.

O. T. Amyrauld. Geo. A. Kennedy. J. T. Rork.
W. Manchester. D. S. Tamblyn.

MATERIA MEDICA.—THIRD YEAR.

Geo. A. Kennedy. J. T. Rork. D. S. Tamblyn.
W. Manchester. O. T. Amyrauld.

ANATOMY.—SECOND YEAR.

A. D. Harrington. W. R. Blair. A. R. Douglas.
S. Hadwen. W. H. Spear.

PHYSIOLOGY.—SECOND YEAR.

A. D. Harrington. S. Hadwen. W. R. Blair.
A. R. Douglas. W. H. Spear.

CHEMISTRY.—SECOND YEAR.

A. D. Harrington. S. Hadwen. A. R. Douglas.
W. R. Blair. L. Doyle. A. C. Clark.
W. H. Spear.

HISTOLOGY.—SECOND YEAR.

S. Hadwen and W. R. Blair (equal). W. H. Spear.
A. D. Harrington. L. Doyle. A. S. Clark.

HISTOLOGY.—FIRST YEAR.

Geo. Halcro Hugh Gaw.

BOTANY.

Hugh Gaw.

CYNOLOGY.

S. Hadwen. Hugh Gaw. A. S. Clark.
W. R. Blair. A. D. Harrington. O. T. Amyrauld.
A. R. Douglas. D. S. Tamblyn. G. Halcro.
W. H. Spear. J. T. Rork.

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MATRICULATION EXAMINATIONS.

FACULTIES OF ARTS, APPLIED SCIENCE, AND MEDICINE.

ENGLISH GRAMMAR.

ARTS, APPLIED SCIENCE, AND MEDICINE.

WEDNESDAY, SEPT. 19TH :—9 TO 10.30 A. M.

(*N.B.—Question 5 is compulsory.*)

1. Give the plural of envoy, crisis, Turcoman, son-in-law, knight-errant; the feminine of host, czar, earl, drake, fox; the second person singular of the past tense and the past participle of abide, chide, beseech, lay, tread.

2. Define and illustrate : defective verb, clause, phrase, verb of incomplete predication, weak verb, hybrid, passive voice, synonym.

3. Classify pronouns, adjectives and adverbs, and give, when possible, two examples of each class.

4. Correct or justify, giving your reasons :—

(*a*) I expected to have seen the Bank paying in gold and silver.

(*b*) Each of these classes of the human race has desires, fears and conversation peculiar to itself; cares which another cannot feel and pleasures which he cannot partake.

(*c*) Anthea was content to call a coach and crossed the brook.

(*d*) Another magistrate reports several robberies of arms in the parishes of Skull and Kilmoe.

(*e*) The Minister of the King of the Netherlands claimed the pictures belonging to his Sovereign, equally with those of other powers.

5. (*a*) Parse and analyse :

He fills with his power all their hearts to the brim,
Was aught ever heard like his fiddle and him ?

(*b*) Write a compound sentence consisting of two complex sentences, each of which contains a noun, an adjective and an adverbial clause. Specify the clauses so written.

ENGLISH HISTORY.

ARTS, APPLIED SCIENCE, AND MEDICINE.

WEDNESDAY, SEPTEMBER 19TH :—MORNING, 10.30 TO 12.

NOTE.—The candidate will answer any *six* questions.

1. Give a list, in chronological order, of the different territorial divisions which existed in Britain between the time of the Romans and the Norman Conquest.

2. Sketch the reign of Henry I.

3. What part did Britain take in the Crusades?

4. Describe that portion of the Hundred Years' War which falls in the 15th century.

5. Examine the reign of Henry VIII. from the standpoint of foreign politics.

6. Detail the events of the decade, 1640-1650.

7. Name the great English statesmen of the 13th century in order of time.

8. Write what you know of English industrial progress since 1775.

DICTATION.

ARTS, APPLIED SCIENCE, AND MEDICINE.

This ribaldry composed in a garret on the Danube, for the entertainment of a day, will be preserved by the scribblers of Germany in their monthly, quarterly, and annual journals; will be by the writers of the rest of Europe chronicled as an authentic document, and will finally receive endless durability in carefully written histories, intended to go down to the latest posterity, as accurate pictures of the present times. Strangers will defame my character to all future ages, and not one of my countrymen will waste a drop of ink in my vindication. Ah! why was I cast among so vile a race? why was I born in such a miserable epoch? I had some generosity, some honest pride, some noble sentiments in my composition, and it was only when I found modesty confounded with incapacity and humility considered as meanness; when I saw virtue excite more distrust than vice, and successful vice usurp the praise of virtue, that I cast off qualities which could only prove stumbling-blocks in my way, and that like the rest I became insidious, vindictive and faithless—but on others fall the weight of my sins; on others, the responsibility of my good dispositions depraved!

ENGLISH LITERATURE AND COMPOSITION.

ARTS, APPLIED SCIENCE, AND MEDICINE.

WEDNESDAY, SEPT. 19TH:—2.30 TO 5.30 P.M.

(Candidates may take either Section I. or Section II. All Candidates must take Section III., except those who have entered for First Year Exhibitions. Write the answers on each author in separate books.)

I.

A. SCOTT: *The Lady of the Lake.*

1. Give an outline account of the events contained in Canto I. (*The Chase*), *or* Canto III. (*The Gathering*).

2. Discuss the character of Ellen, *or* of Fitz-James, with illustrative quotations from the text of the poem.

3. Write explanatory notes on:—The Lady of the Bleeding Heart, coronach, shallop, mavis, Stout Earl William, Snowdoun's Knight is Scotland's King.

4. In what metre are the narrative and descriptive parts of this poem written? Scan eight consecutive typical verses. Explain the nature of the Spenserian stanza.

5. Illustrate from the poem:—

(*a*) Clan feeling.
(*b*) Scottish admiration of manly courage.
(*c*) Scott's genius in relating a well-constructed story.

B. TENNYSON: *Selections.*

(This paper may be taken instead of A.)

Give some account of Tennyson's literary life.

2. State Tennyson's characteristics as a poet. Illustrate them from the poems prescribed, and say with precision whence each illustration is taken.

3. In eight or ten lines to each, sketch the course of any three of the longer poems you have studied.

4. Refer to its poem and to its context each of the following extracts:—

(*a*) And from the craggy ledge the poppy hangs in sleep.

(*b*) The last great Englishman is low.

(*c*) I have only done my duty as a man is bound to do.

(*d*) He is but a landscape painter
And a village maiden she.

(*e*) Strong in will
To strive, to seek, to find, and not to yield.

(*f*) Let me go; take back thy gift.

(*g*) 'I am half-sick of shadows.'

(*h*) A brow of pearl
Tressed with redolent ebony.

(*i*) The sweet forget-me-nots
That grow for happy lovers.

(*j*) And the sun went down, and the stars came out far over the summer sea.

C. SHAKSPERE: *Richard II.*

1. Quote and scan twenty consecutive lines of the play.

2. Contrast the characters of Richard and Bolingbroke.

3. Explain the following passages, and say by whom and on what occasion they are spoken:—

(*a*) Within the hollow crown
That rounds the mortal temples of a king
Keeps Death his court, and there the antic sits,
Scoffing his state and grinning at his pomp,

(*b*) 'Twill make me think the world is full of rubs,
And that my fortune runs against the bias.

(*c*) Our scene is alter'd from a serious thing,
And now chang'd to "The Beggar and the King."

(*d*) Hail, royal prince!
Thanks, noble peer;
The cheapest of us is ten groats too dear.

(*e*) England, bound in with the triumphant sea,
Whose rocky shore beats back the envious siege
Of watery Neptune, is now bound in with shame,
With inky blots and rotten parchment bonds.

(*f*) Now for our Irish wars:
We must supplant those rough rugheaded kerns,
Which live like venom where no venom else
But only they have privilege to live.

II.

D. LONGFELLOW: *Selections.*

1. Give an outline of the story of *Evangeline*, and write a short paragraph on the topography of the poem.

2. Giving eight or ten lines to each, sketch the course of the following poems:

(*a*) *The Wreck of the Hesperus.*

(*b*) *The Warden of the Cinque Ports.*

(*c*) *Excelsior.*

3. Refer to its poem and to its context each of the following extracts:—

(*a*) Such songs have power to quiet
The restless pulse of care.

(*b*) The dead lay in his shroud of snow.

(*c*) Let the dead past bury its dead!

(*d*) Not as a child shall we again behold her.

(*e*) And the burden laid upon me
Seemed greater than I could bear.

(*f*) For he spake of Ruth the beautiful
And still I thought of thee.

(*g*) Voices of children at play, the crowing of cocks in the farm-yards.

(*h*) The light-house,—the dismantled fort—
The wooden houses, quaint and brown.

(*i*) And through the window panes on floor and panel
Streamed the red autumn sun.

(*j*) "Last night the moon had a golden ring."

E. WORDSWORTH: *Selections.*

1. What do you know regarding Wordsworth's education and habits?

2. State the characteristics of Wordsworth's poetry, and illustrate them from the poems you have read.

3. Quote or give the substance of *two* of Wordsworth's sonnets.

4. Refer to its poem and to its context each of the following extracts:—

(*a*) A perfect Woman, nobly planned,
To warn, to comfort, and command;

(*b*) And beauty born of murmuring sound
Shall pass into her face.

(*c*) If Thought and Love desert us, from that day
Let us break off all commerce with the Muse.

(*d*) Dear God! the very houses seem asleep.

(*e*) Thy soul was like a Star, and dwelt apart.

(*f*) A Life, A Presence like the Air.

(*g*) Oft have I seen it muffled up from harm,
In close self shelter, like a Thing at rest.

(*h*) There is madness about thee, and joy divine
In that song of thine.

(*i*) They were thy chosen music, Liberty!

(*j*) Be mine, in hours of fear
Or grovelling thought, to seek a refuge here.

III.

COMPOSITION.

Write an essay of not less than three pages on *one* of the following subjects:—

A. A Summer Outing.
B. Books of Adventure.
C. Sincerity.

GEOMETRY.

MATHEMATICS, PART I.

ARTS, APPLIED SCIENCE, AND MEDICINE.

TUESDAY, SEPTEMBER 18TH:—MORNING, 9 TO 12.

1. Triangles upon the same base, and between the same parallels, are equal to one another.

(*a*) If P be a point in a side AB of a parallelogram $ABCD$, and PC, PD be joined, the triangles PAD, PBC are together equal to the triangle PDC.

2. Bisect a given triangle by a straight line drawn from a given point in one of the sides.

3. If a straight line be divided into any two parts, the square on the whole line is equal to the squares on the two parts together with twice the rectangle contained by the parts.

(*a*) In a triangle, whose vertical angle is a right angle, a straight line is drawn from the vertex perpendicular to the base. Shew that the rectangle contained by the segments of the base is equal to the square on the perpendicular.

4. To divide a given straight line into two parts, so that the rectangle contained by the whole and one of the parts shall be equal to the square on the other part.

5. To describe a square that shall be equal to a given rectilinear figure.

6. To draw a straight line from a given point, either without or on the circumference, which shall touch a given circle.

(*a*) If a quadrilateral $ABCD$ be described about a circle, shew that the sum of AB and CD is equal to the sum of AD and BC.

7. If a straight line touch a circle, and from the point of contact a straight line be drawn cutting the circle, the angles made by this line with the line touching the circle are equal to the angles in the alternate segments of the circle.

8. If from any point without a circle two straight lines be drawn, one of which cuts the circle, and the other touches it, the rectangle contained by the whole line which cuts the circle and the part of it without the circle will be equal to the square on the line which touches it.

MATHEMATICS, PART I.

ALGEBRA AND ARITHMETIC.

ARTS, APPLIED SCIENCE, AND MEDICINE.

TUESDAY, SEPT. 18TH:—AFTERNOON, 2 TO 5.

1. Resolve into factors:—

(*a*) $a^2 - 7a + 12$

(*b*) $a^2 - a - 156$

(*c*) $4x^2 + 11x - 3$

(*d*) $x^4 + x^2 y^2 + y^4$

(*e*) $x^2 - 2x + 1 - a^2 - 4ab - 4b^2$

2. Simplify:—

$$\left(\frac{a^2 - ax + x^2}{a - x} - \frac{a^2 + ax + x^2}{a + x}\right)\left(\frac{a^2 - x^2}{x^3}\right)$$

Find the value of

$$\frac{y + z}{(x - y)(x - z)} + \frac{z + x}{(y - z)(y - x)} + \frac{x + y}{(z - x)(z - y)}$$

3. Solve the following equations:

(1) $\dfrac{x}{x + 2} + \dfrac{4}{x + 6} = 1.$

(2) $\frac{1}{2}x - \frac{1}{5}y = 4$; $\frac{1}{7}x + \frac{1}{15}y = 3$.

(3) $\frac{4}{x-1} - \frac{5}{x+2} = \frac{3}{x}$.

(4) $x^2 + y^2 = 180$; $x - y = 6$.

(5) $\sqrt{x+3} + \sqrt{x} = 5$.

4. Two persons, 27 miles apart, setting out at the same time, are together in 9 hours if they walk in the same direction, but in 3 hours if they walk in opposite directions: find their rates of walking.

5. Two rectangles contain the same area, 480 square yards. The difference of their lengths is 10 yards, and of their breadths 4 yards; find their sides.

6. Find the square root of $12a^x + 4 - 6a^{3x} + a^{4x} + 5a^{2x}$

Find the value of $2\sqrt{363} - 5\sqrt{243} + \sqrt{192}$

Rationalize the denominator of $\frac{3\sqrt{2} - 1}{3\sqrt{2} + 1}$

7. Simplify $\frac{2\frac{4}{5} - 1\frac{1}{2} + 9\frac{1}{11}}{4\frac{1}{5} - 2\frac{1}{4} + 13\frac{7}{11}}$

8. What principal will give \$616, simple interest in $5\frac{1}{2}$ years at $6\frac{2}{3}$ per cent.?

9. A cubic foot of water weighs 1000 oz., find the weight of a rectangular block of gold 20.32 cm. in length, 5.08 cm. in thickness and 7.62 cm. in breadth, the weight of a mass of gold being 19.26 times the weight of an equal bulk of water.

MATHEMATICS, PART II.

ARTS AND APPLIED SCIENCE.

GEOMETRY.

FRIDAY, SEPTEMBER 21ST :—MORNING, 9 TO 12.30.

1. Describe a circle about a given triangle.

If the inscribed and circumscribed circles of a triangle have the same centre, show that the triangle is equilateral, and that the diameter of the circumscribed circle is double that of the inscribed circle.

2. Inscribe a regular quindecagon in a given circle.

3. If one side of a triangle be produced, and the exterior angle so formed be bisected by a straight line which cuts the base produced, the segments between the bisector and the extremities of the base shall have the same ratio as the remaining sides of the triangle have.

Show how a given straight line may be divided both internally and externally in a given ratio.

4. Similar triangles are to one another in the duplicate ratio of their homologous sides.

If the lengths of two of the homologous sides are 8 and 4, what is the ratio of the triangles?

ALGEBRA.

5. Find a mean proportional to $(a+b)^2$ and $(a-b)^2$.

6. Find the sum of any number of terms of a Geometrical Progression, and deduce the sum of an infinite Geometrical Series.

If the sum of a Geometrical Progression to infinity is n times the first term, show that the common ratio is $1-\frac{1}{n}$.

7. When are three quantities in Harmonical Progression?

If a line AB be divided internally at C and externally at D, so that $AC : CB :: AD : DB$, show that AC, AB and AD are in Harmonical Progression.

8. How many numbers can be formed from the digits 1, 2, 3, 4, 5? How many from 1, 2, 3, 4, 0?

9. Expand $(2+x)^4$ by the Binomial Theorem, and find three terms of the expansion of $(2+x)^{-3}$.

TRIGONOMETRY.

10. Give the signs of the following:—(1) sin 100°, (2) cos 200°, (3) tan 300°, (4) cot 400°, (5) sec 500°, (6) cosec 600°.

11. Express the ratios of $180° - A$ and those of $180° + A$ in terms of those of A.

12. Prove the following:—

(1) $\tan^2 A - \sin^2 A = \sin^4 A \sec^2 A$,

(2) $\cos(A+B) = \cos A \cos B - \sin A \sin B$,

(3) $\sin 80° - \sin 20° = \sin 40°$.

13. Show that:—

(1) $\sin 2A = \frac{2 \tan A}{1 + \tan^2 A}$,

(2) $\cos 2A = \frac{1 - \tan^2 A}{1 + \tan^2 A}$,

(3) $\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$.

LATIN AUTHORS.

ARTS, APPLIED SCIENCE, AND MEDICINE.

MONDAY, SEPTEMBER 17TH:—9 TO 11 A.M.

NOTE.—Candidates for Matriculation will translate (explaining the grammatical construction of words printed in italics) *any two* of the following sections (*A*), (*B*), (*C*). Candidates for First Year Exhibitions will do (*A*), (*B*) and (*C*).

(A) CAESAR, DE BELLO GALLICO I and II, *or*
CAESAR, DE BELLO GALLICO V and VI.

Eodem die ab exploratoribus certior factus hostes sub monte *consedisse* milia passuum ab ipsius castris octo, qualis esset natura montis et qualis in circuitu ascensus qui *cognoscerent* misit. Renuntiatum est facilem esse. De tertia vigilia T. Labienum legatum pro praetore cum duabus legionibus et his ducibus qui iter cognoverant summum iugum montis ascendere iubet; quid sui consilii sit ostendit. Ipse de quarta vigilia eodem itinere quo hostes ierant ad eos contendit equitatumque omnem ante se mittit. P. Considius, qui *rei militaris* peritissimus habebatur, et in exercitu L. Sullae et postea in M. Crassi fuerat, cum exploratoribus praemittitur.—BK. I.

Legionis nonae et decimae milites, ut in sinistra parte acie constiterant, *pilis* emissis cursu ac lassitudine exanimatos vulneribusque confectos Atrebates (nam his ea pars obvenerat) celeriter ex loco superiore in flumen compulerunt et transire conantes insecuti gladiis magnam partem eorum impeditam interfecerunt. Ipsi *transire* flumen non dubitaverunt, et in locum iniquum progressi rursus resistentes hostes redintegrato proelio in fugam coniecerunt. Item alia in parte diversae duae legiones, undecima et octava, profligatis Veromanduis, quibuscum erant congressi, ex loco superiore in ipsis fluminis ripis proeliabantur.—BK. II.

Hac in utramque partem *disputatione* habita cum a Cotta primisque ordinibus acriter *resisteretur*, Vincite, inquit, si ita vultis, Sabinus, et id clariore voce ut magna pars militum exaudiret: neque is sum, inquit, qui gravissime ex vobis mortis periculo *terrear*: hi sapient, et si gravius quid acciderit, abs te rationem reposcent; qui, si per te liceat, perendino die cum proximis hibernis coniuncti communem cum reliquis belli casum sustineant, non reiecti et relegati longe ab ceteris aut ferro aut fame intereant.—Bk. V.

Germani desperata *expugnatione* castrorum, quod nostros iam constitisse in munitionibus videbant, cum ea praeda quam in silvis deposuerant trans Rhenum sese receperunt. Ac tantus fuit etiam post discessum hostium terror ut ea nocte, cum C. Volusenus missus cum equitatu ad castra venisset, fidem non faceret adesse cum incolumi Caesarem exercitu. Sic omnium animos timor praeoccuparverat ut paene alienata mente deletis omnibus copiis equitatum [tantum] se ex fuga recepisse dicerent, neque *incolumi* exercitu Germanos castra oppugnaturos fuisse contenderent. Quem timorem Caesaris adventus sustulit.—Bk. VI.

(B) Virgil, Aeneid I, *or* II, *or* V, *or* VI.

Olli subridens hominum sator atque deorum
vultu, quo caelum tempestatesque serenat,
oscula libavit natae; dehinc talia fatur:
Parce *metu*, Cytherea; manent immota tuorum
fata tibi; cernes urbem et promissa Lavini
moenia, sublimemque feres ad sidera caeli
magnanimum Aenean; neque me sententia vertit.

Hunc Phœnissa tenet Dido, blandisque moratur
Vocibus; et vereor, quo se Iunonia *vertant*
Hospitia; haud tanto cessabit *cardine* rerum.
Quocirca capere ante dolis et cingere flamma
Reginam meditor, ne quo se numine *mutet*;
Sed magno Aeneae mecum teneatur amore.
Qua facere id possis, nostram nunc accipe mentem:
Regius accitu cari genitoris ad urbem
Sidoniam puer ire parat, mea maxima cura.—Bk. I.

Atque ubi iam patriae perventum ad limina sedis
antiquasque domos, genitor, quem tollere in altos
optabam primum montes, primumque petebam,
abnegat *excisa* vitam producere Troia

exsiliumque pati. Vos o, quibus integer *aevi*
sanguis, ait, solidaeque suo stant *robore* vires,
vos agitate fugam
Me si caelicolae *voluissent* ducere vitam,
has mihi servassent sedes. Satis una superque
vidimus excidia, et captae superavimus urbi.
Sic o, sic positum affati discedite corpus.
Ipse manu mortem inveniam ; miserebitur hostis,
exuviasque petet. Facilis iactura sepulcri.
Iam pridem invisus divis et inutilis *annos*
demoror, ex quo me divum pater atque hominum rex
fulminis afflavit ventis, et contigit igni.—Bk. II.

Haec fatus, duplicem ex humeris reiecit amictum,
et magnos membrorum artus, magna ossa lacertosque
exuit, atque ingens media consistit *arena*.
Tum satus *Anchisa* cestus pater extulit aequos,
et paribus palmas amborum innexuit armis.
Constitit in digitos extemplo arrectus uterque,
brachiaque ad superas interritus extuli auras.
Abduxere retro longe capita ardua ab ictu ;
immiscentque manus *manibus*, pugnamque lacessunt,
Ille pedum melior *motu* fretusque iuventa,
hic membris et mole valens ; sed tarda *trementi*
genua labant ; vastos quatit aeger anhelitus artus.—Bk. V.

Ecce gubernator sese Palinurus agebat :
qui Libyco nuper cursu, dum sidera servat,
exciderat *puppi* mediis effusus in undis.
Hunc ubi vix multa maestum cognovit in umbra,
sic prior alloquitur : Quis te, Palinure, *deorum*
eripuit *nobis*, medioque sub aequore mersit ?
Dic age. Namque mihi, fallax haud ante repertus,
hoc uno responso animum delusit Apollo,
qui fore te ponto incolumem, *fines* que canebat
venturum Ausonios. En haec promissa fides est ?
Ille autem : Neque te Phoebi cortina fefellit,
dux Anchisiada, nec me deus aequore mersit.
Namque gubernaclum, multa vi forte *revulsum*,
cui datus haerebam custos, cursusque regebam,
praecipitans traxi mecum.—Bk. V

(C) CICERO, IN CATILINAM III, IV., *or*
HORACE, ODES III, *or*
TACITUS, AGRICOLA.

Ac ne longum *sit*, Quirites, tabellas proferri iussimus, quae a quoque dicebantur datae. Primum ostendimus Cethego signum: cognovit. Nos linum incidimus: legimus. Erat scriptum ipsius manu Allobrogum senatui et populo, sese, quae eorum legatis *confirmasset*, esse facturum: orare, it item illi facerent, quae sibi legati eorum recepissent. Tum Cethegus, qui paullo ante aliquid tamen de gladiis ac sicis, quae apud ipsum erant deprehensae, respondisset dixissetque, se semper bonorum ferramentorum studiosum fuisse, recitatis litteris debilitatus atque abiectus, *conscientia* convictus, repente conticuit.—IN CAT. III.

Cogitate quantis laboribus fundatum imperium, quanta virtute stabilitam libertatem, quanta deorum benignitate auctas exaggeratasque fortunas, una nox paene *delerit*. Id ne umquam posthac non modo non confici, sed ne cogitari quidem possit a civibus, hodierno die providendum est. Atque haec non ut vos, qui mihi studio paene praecurritis, excitarem, locutus sum; sed ut mea vox, quae debet esse in re publica princeps, *officio* functa consulari, videretur.—IN CAT. IV.

O fons *Bandusiae*, splendidior vitro,
dulci digne *mero*, non sine floribus,
cras donaberis haedo,
cui frons turgida cornibus.

primis et venerem et proelia destinat;
frustra: nam gelidos inficiet tibi
rubro *sanguine* rivos
lascivi suboles gregis.

Te flagrantis atrox hora caniculae
nescit *tangere*: tu frigus amabile
fessis vomere tauris
praebes et pecori vago.

Fies nobilium tu quoque *fontium*,
me dicente cavis impositam ilicem
saxis, unde loquaces
lymphae desiliunt tuae.

Horace, Odes III.

Haec primo statim anno comprimendo, egregiam famam *paci* circumdedit; quae vel incuria vel intolerantia priorum haud minus quam bellum timebatur. Sed ubi aestas advenit, contracto exercitu, multus in agmine laudare modestiam, disiectos coercere: loca *castris* ipse capere, aestuaria ac silvas ipse praetentare; et nihil interim apud hostes quietum pati, quo minus subitis *excursibus popularetur*: atque, ubi satis terruerat, parcendo rursus irritamenta pacis ostentare. Quibus rebus multae civitates, quae in illum diem ex aequo egerant, datis obsidibus, iram posuere, et praesidiis castellisque circumdatae tanta ratione curaque, ut nulla ante Britanniae nova pars illacessita *transierit*.— *Tacitus, Agricola.*

LATIN PROSE COMPOSITION AND TRANSLATION AT SIGHT.

ARTS, APPLIED SCIENCE, AND MEDICINE.

MONDAY, SEPTEMBER 17TH:—9 TO 11 A.M.

NOTE.—This paper is intended for those only who do not offer the prescribed books. Candidates for matriculation will do *one* passage from each section; candidates for Exhibitions will do the whole paper.

A.

If you have been persuaded to pardon him his offences, and not to exact punishment for so many crimes, would any one impute that to you as a fault, or taunt you with your clemency and gentleness? It might perhaps have been better not to have listened to prayer; but error is one thing, wrong-doing another.

It is generally agreed among historians that this King, trained by toil and accustomed to bear with patience the frowns of fortune showed in the midst of disaster and ruin the same character as in prosperity.

B.

Advenit, o socii, nunc abeundi tempus e vita, quam reposcenti naturae, ut debitor bonae fidei, redditurus exsulto: non ut quidam opinantur, afflictus et moerens: philosophorum sententia perdoctus, quantum corpore sit beatior animus, et contemplans, quoties conditio melior a deteriore secernitur, laetandum esse potius, quam dolendum; illud quoque advertens, quod etiam dii caelestes quibus-

dam piissimis mortem tanquam summum proemium persolverunt. Sempiternum veneror numen, quod non clandestinis insidiis, nec onga morborum asperitate, vel damnatorum fine decedo: sed in medio corsu florentium gloriarum hunc merui clarum e mundo di gressum. Aequo enim judicio juxta timidus est et ignavus, qui, cum non oportet, mori desiderat, et qui refugiat, cum sit opportunum.

Ammianus Marcellinus.

Iam senior Ladon Tiberinae nauta carinae
Proxima dilectis rura paravit aquis.
Quae cum saepe vagus premeret torrentibus undis
Tibris et hiberno rumperet arva lacu,
Emeritam puppim, ripa quae stabat in alta,
Implevit saxis opposuitque vadis.
Sic nimias avertit aquas. Quis credere posset?
Auxilium domino mersa carina tulit.

TRANSLATION AT SIGHT.

ARTS, APPLIED SCIENCE, AND MEDICINE.

MONDAY, SEPTEMBER 17TH :—11 TO 12 A.M.

NOTE.—*Candidates for Matriculation will do I.; candidates for Exhibitions will do I. and II.*

I.

Condita civitate, quam ex nomine suo Romam vocavit, haec fere egit. Multitudinem finitimorum in civitatem recepit; centum ex senioribus legit, quorum consilio omnia ageret, quos senatores nominavit propter senectutem. Tum, cum uxores ipse et populus suus non haberent, invitavit ad spectaculum ludorum vicinas urbi Romae nationes atque earum virgines rapuit. Commotis bellis propter raptarum iniuriam, Caeninense vicit, Sabinos, Veientes. Haec omnia oppida urbem cingunt. Et cum, orta subito tempestate non comparuisset, anno regni tricesimo septimo ad deos tranisse creditus est et consecratus. Deinde Romae per quinos dies senatores imperaverunt, et his regnantibus annus unus completus est.

II.

Iam gravis aequabat luctus et mutua Mavors
Funera; caedebant pariter pariterque ruebant
Victores victique; neque his fuga nota, neque illis.
Di Iovis in tectis iram miserantur inanem

Amborum, et tantos mortalibus esse labores ;
Hinc Venus, hinc contra spectat Saturnia Iuno.
Pallida Tisiphonemedia inter milia saevit.
At vero ingentem quatiens Mezentius hastam
Turbidus ingreditur campo. Quam magnus Orion.
Cum pedes incedit medii per maxuma Nerei
Stagna viam scindens, humero supereminet undas,
Aut, summis referens annosam montibus ornum,
Ingrediturque solo et caput inter nubila condit :
Talis se vastis infert Mezentius armis.
Huic contra Aeneas, speculatus in agmine longo,
Obvius ire parat.

LATIN GRAMMAR AND COMPOSITION.

ARTS, APPLIED SCIENCE, AND MEDICINE.

MONDAY, SEPTEMBER 17TH :—2 TO 4 P.M,

I. LATIN GRAMMAR.

NOTE.—*Candidates for Matriculation will answer the first seven questions ; candidates for Exhibitions, questions* 2, 4, 6, 7, 8, 9 *and* 10.

1. Decline *rex, corpus ; vir liber ; unus quisquam* (marking by the usual sign all long vowels).

2. Write down the Nom. Sing. of *ossis, pectore, noctis, itineris ;* the Gen. Sing. of *filius ;* the Dat. Pl. of *deus ;* and the Voc. Sing. of *meus.*

3. Give the principal parts of *eo, refero, premo, figo, loquor, pertimeseo, requiro.*

4. Give the Imperative Pres. of *sum ;* the Fut. Indic. Act. of *dico ;* the Imperf. Indic. of *prosum ;* the Pres. Subj. Act. of *fero :* all the Participles, with meanings, of *loquor.*

5. Give the Comparative and Superlative of *altus, prudens, acer, facilis. male, pulchre.*

6. Distinguish the Objective and Subjective Genitive, and give examples.

7. State clearly the principles of syntax that explain the following constructions : nihil erat *reliqui ;* vir *summae virtutis ;* laudator *temporis acti ;* Caesar *a Bruto* interfectus es

8. Distinguish between the Pure Perfect Tense and the Historical Perfect ; between the Imperfect and Historical Perfect.

9. Are both of the following sentences grammatically correct ?
(*a*) Caesarem plus amamus quam Pompeium.
(*b*) Caesarem plus amamus Pompeio.
May either of these give rise to ambiguity ?

10. Give the general rule of Sequence of Tenses, and some modifications to which this rule is subject.

II. LATIN COMPOSITION.

[*Candidates for Matriculation will translate into Latin the first five sentences ; candidates for Exhibitions will omit the first three.*

1. After the death of Orgetorix, the Helvetii determined to emigrate.

2. On the appointed day all came to the bank of the Rhone.

3. Here they settled, and drove out the Gauls, who used to inhabit places.

4. When Caesar had set out from Rome, he hastened to Geneva.

5. It is uncertain where they started from, and when they will reach the city.

6. At the break of day he drew up all his forces and marshalled them in a double line.

7. The auxiliaries he stationed in the centre, and waited to see what plan the enemy would adopt.

8. If the Romans should begin to retreat, they intended to attack them since they would be encumbered in their march.

GREEK—XENOPHON AND SIGHT TRANSLATION.

ARTS, APPLIED SCIENCE, AND MEDICINE.

MONDAY, SEPTEMBER 24TH :—MORNING, 9 TO 12.

N.B.—*Question 4 must be attempted by every candidate.*

1. Translate, explaining the constructions underlined :—

(*a*) καὶ ἡ μήτηρ συνέπραττεν αὐτῷ ταῦτα, ὥστε βασιλεὺς τῆς μὲν πρὸς ἑαυτὸν ἐπιβουλῆς οὐκ ἠσθάνετο. Τισσαφέρνει δὲ ἐνόμιζε πολεμοῦντα αὐτὸν ἀμφὶ τὰ στρατεύματα

ὀαπανᾶν· ὥστε οὐδὲν ἤχθετο αὐτῶν πολεμούντων. καὶ γὰρ ὁ Κῦρος ἀπέπεμπε τοὺς γιγνομένους δασμοὺς βασιλεῖ ἐκ τῶν πόλεων ὧν Τισσαφέρνης ἐτύγχανεν ἔχων.

(*b*) ἐκάλεσε δὲ καὶ τοὺς Μίλητον πολιορκοῦντας καὶ τοὺς φυγάδας ἐκέλευσε σὺν αὐτῷ στρατεύεσθαι, ὑποσχόμενος αὐτοῖς, εἰ καλῶς καταπράξειεν ἐφ' ἃ ἐστρατεύετο, μὴ πρόσθεν παύσεσθαι πρὶν αὐτοὺς καταγάγοι οἴκαδε.

(*c*) τῇ δὲ ὑστεραίᾳ ἦκεν ἄγγελος λέγων ὅτι λελοιπὼς εἴη Συέννεσις τὰ ἄκρα, ἐπεὶ ᾔσθετο, ὅτι τὸ Μένωνος στράτευμα ἤδη ἐν Κιλικίᾳ ἦν εἴσω τῶν ὀρέων καὶ ὅτι τριήρεις ἥκουε περιπλεούσας ἀπ' Ἰωνίας εἰς Κιλικίαν Ταμῶν ἔχοντα τὰς Λακεδαιμονίων καὶ αὐτοῦ Κύρου.

(*d*) ἐπεὶ δὲ ὑμεῖς οὐ βούλεσθε συμπορεύεσθαι ἀνάγκη δή μοι ἢ ὑμᾶς προδόντα τῇ Κύρου φιλίᾳ χρῆσθαι ἢ πρὸς ἐκεῖνον ψευσάμενον μεθ' ὑμῶν ἰέναι. εἰ μὲν δὴ δίκαια ποιήσω οὐκ οἶδα, αἱρήσομαι δ' οὖν ὑμᾶς καὶ σὺν ὑμῖν ὅ,τι ἂν δέῃ πείσομαι.

(*e*) ῥίψαντες γὰρ τοὺς πορφυροῦς κάνδυς ὅπου ἔτυχεν ἕκαστος ἑστηκώς, ἵεντο ὥσπερ ἂν δράμοι τις περὶ νίκης καὶ μάλα κατὰ πρανοῦς γηλόφου, ἔχοντες τούτους τε τοὺς πολυτελεῖς χιτῶνας καὶ τὰς ποικίλας ἀναξυρίδας, ἔνιοι δὲ καὶ στρεπτοὺς περὶ τοῖς τραχήλοις καὶ ψέλια περὶ τοῖς χερσίν· εὐθὺς δὲ σὺν τούτοις εἰσπηδήσαντες εἰς τὸν πηλὸν θᾶττον ἢ ὥς τις ἂν ᾠήθη μετεώρους ἐξεκόμισαν τὰς ἁμάξας.

(*f*) ὥστε οὐ τοῦτο δέδοικα μὴ οὐκ ἔχω ὅ,τι δῶ ἑκάστῳ τῶν φίλων, ἂν εὖ γένηται, ἀλλὰ μὴ οὐκ ἔχω ἱκανούς, οἷς δῶ.

(*g*) εἰ δέ τινα ὁρῴη δεινὸν ὄντα οἰκονόμον ἐκ τοῦ δικαίου καὶ κατασκευάζοντά τε ἧς ἄρχοι χώρας καὶ προσόδους

ποιοῦντα, οὐδένα ἂν πώποτε ἀφείλετο. ἀλλ' ἀεὶ πλείω προσεδίδου· ὥστε καὶ ἡδέως ἐπόνουν καὶ θαρραλέως ἐκτῶντο καὶ ἃ ἐπέπατο αὖ τις ἥκιστα Κῦρον ἔκρυπτεν· οὐ γὰρ φθονῶν τοῖς φανερῶς πλουτοῦσιν ἐφαίνετο, ἀλλὰ πειρώμενος χρῆσθαι τοῖς τῶν ἀποκρυπτομένων χρήμασι.

2. In the above extracts parse the following words giving principal parts of verbs:—ἤχθετο—ἀπέπεμπε—ὑποσχόμενος—κατάγαγοι—ἦκεν—λελοιπὼς εἴη—ἤκουε—πείσομαι—ἔτυχεν—δράμοι—ἀφειλετο—ἐκρυπτεν.

3. Mention the books written by Xenophon and give the period of his activity.

4. Translate:—

Καὶ ἦν μὲν δειλη ἤδη, οἱ δ' ἐκέλευον αὐτοὺς ἐμφαγόντας πορεύεσθαι. καὶ τὸν ἡγεμόνα δήσαντες παδαδιδόασιν αὐτοῖς καὶ συντίθενται τὴν μὲν νύκτα, ἣν λάβωσι τὸ ἄκρον τὸ χωρίον φυλάττειν, ἅμα δὲ τῇ ἡμέρᾳ τῇ σάλπιγγι σημαίνειν· καὶ τοὺς μὲν ἄνω ὄντας ἰέναι ἐπί τοὺς κατέχοντας τὴν φανερὰν ἔκβασιν, αὐτοὶ δὲ συμβοηθήσειν ἐκβαίνοντες ὡς ἂν δύνωνται τάχιστα. ταῦτα συνθέμενοι οἱ μὲν ἐπορεύοντο πλῆθος ὡς δισχίλιοι· καὶ ὕδωρ πολὺ ἦν ἐξ οὐρανοῦ. ενοφῶν δὲ ἔχων τοὺς ὀπισθοφύλακας ἡγεῖτο πρὸς τὴν φανερὰν ἔκβασιν, ὅπως ταύτῃ τῇ ὁδῷ οἱ πολέμια προσέχοιεν τὸν νοῦν καὶ ὡς μάλιστα λάθοιεν οἱ περιιόντες

GREEK GRAMMAR AND COMPOSITION.

ARTS AND APPLIED SCIENCE.

MONDAY, SEPTEMBER 24TH:—AFTERNOON, 2 TO 5.

A.—COMPOSITION.

1. On the hill stood a carriage in which Pausanias with two others was escaping from the city toward the sea.

2. Persuaded by messengers he marched fourteen days and came to the river.

3. When the generals were killed the soldiers were at a loss what to do.

4. Going home he found the soldiers, some lying by the road, others ready to desert.

5. It was announced from the king that ships would be present and that he himself would after this send for the Greeks.

B.—GRAMMAR.

1. Give Genitive Singular, Acc. Plur. and Gender of *ὕδωρ κῦων χείρ ἵππεύς ἄστυ.*

2. Give the Pres. Opt. Act. Sing. and Plur. of *ὁράω δείκνυμι ἵημι.* 2nd Sing. Aor. Imperative Middle and 2nd Sing. Perfect Indic. Pass. *τίθημι, ἀγγέλλω, φαίνω, λείπω*

3. Decline *βελτίων.* Give Comparative and Superlative of *νέος αἰσχρός πένης ῥᾴδιος ταχύς. γλυκύς πολύς.*

4. Give the Greek for eighth — ten thousand — nine times, nineteen, fiftieth.

FRENCH.

ARTS, APPLIED SCIENCE, AND MEDICINE.

TUESDAY, SEPTEMBER 20TH:—MORNING, 9 TO 12.

1. Translate into English:

(*a*) Or cet homme avait deux voisins, l'un plus riche, l'autre moins.

Il *s'en alla* trouver le premier, et lui dit: "Nous manquons de tout, moi, ma femme et mes enfants: ayez pitié de nous."

Le riche lui répondit: "Que puis-je à cela? Quand vous avez travaillé pour moi, vous ai-je *retenu* votre salaire, ou en ai-e différé le paiement? Jamais je ne *fis* aucun tort ni à vous ni à nul autre: mes mains sont pures de toute iniquité. Votre misère m'afflige, mais chacun doit *songer* à soi dans ces temps mauvais: qui sait combien ils dureront?"

Le pauvre père *se tut;* et, le cœur plein d'angoisse, il s'en retournait lentement chez lui, lorsqu'il rencontra l'autre voisin moins riche.

Celui-ci le voyant pensif et triste, lui *dit:* "Qu'avez-vous? il y a des soucis sur votre front et des larmes dans vos yeux."

Et le père d'une voix altérée lui exposa son infortune.

Quand il eut achevé: "Pourquoi," lui dit l'autre, "vous désoler de la sorte? Ne sommes-nous pas frères? Et comment *pourrais-je* délaisser mon frère en sa détresse? Venez, et nous partagerons ce que je *tiens* de la bonté de Dieu."

La famille qui *souffrait* fut ainsi soulagée, jusqu'à ce qu'elle pût elle-même *pourvoir* à ses besoins.

LAMENNAIS.

(*b*) "Gustave, dit le général en se tournant vers son fils, je ne t'ai donné ce livre qu'à la condition de le quitter à dix heures; tu aurais dû le fermer toi-même à l'heure dite et t'aller coucher comme tu me l'avais *promis*. Si tu veux être un homme remarquable, il *faut* faire de ta parole une seconde religion, et y tenir comme à ton honneur. Fox, un des plus grands orateurs de l'Angleterre, était surtout remarquable par la beauté de son caractère. La fidélité aux engagements pris était la principale de ses qualités. Dans son enfance, son père, un Anglais de vieille roche, lui avait donné une leçon assez vigoureuse pour faire une éternelle impression sur l'esprit d'un jeune enfant. A ton âge, Fox venait, pendant les vacances, chez son père qui avait, comme tous les riches Anglais, un parc assez considérable autour de son château. Il se trouvait dans ce parc un vieux kiosque qui *devait* être abattu et reconstruit dans un endroit où le point de vue était magnifique.

H. DE BALZAC.

2. Translate into French:

(*a*) I think it was Montesquieu who said "Let me make the songs of a people and you may make their laws." No doubt he meant that he influence which makes itself felt every day and all day produces a much greater effect than that which operates at rare moments, even if this latter be naturally stronger.

(*b*) A man who never rests makes a great mistake. Napoleon used to spend whole days in the saddle, but he possessed extraordinary strength and he died comparatively young. If you wish to see your eightieth birthday, unite play and work. You have been told so often not to fail to add work to play that I hardly think it is necessary to repeat the advice here.

3. Write in the plural :—Tout le plateau que j'ai passé me paraît rempli de fleurs. C'est celui-ci qui me plaît le plus.

4. Write the five principal parts (primitive tenses) of the verbs in italics in 1 (*a*) and (*b*).

5. Conjugate in full the preterite and past indefinite of *s'élancer*.

6. Illustrate by short sentences the construction required after the verbs:—*craindre, vouloir, être heureux, sembler, espérer, douter.*

7. Explain fully the rules relating to the agreement of the past participle conjugated with *avoir*. Put past participles for infinitives in the following sentences:—Ces filles ont-elles *voir* mes frères? Non, elles ne les ont pas *voir*. Quelles fleurs avez vous *trouver*? Celles que nous avons *trouver* sont *perdre*.

8. State fully the rules relating to the formation of adverbs in French. Derive adverbs from *exprès, immense, poli, gentil, impuni, fou, complet.*

9. Reproduce in French a short story read aloud in English by the examiner.

GERMAN.

ARTS, APPLIED SCIENCE, AND MEDICINE.

THURSDAY, SEPTEMBER 20TH :—AFTERNOON, 2 TO 5.

N.B.—Candidates from Ontario or Nova Scotia may substitute 9 (*a*) and (*b*) for 1 (*a*) and (*b*).

1. Translate into English :—

(*a*) „Ich bin ein Mann, ich kann mich beherrſchen. Aber ich ſage dir das Eine: auf den Händen möchte ich meinen Sohn tragen, der ſeines Vaters wegen auf ſein Glück verzichtet hat. Wie er auftrat und den ungariſchen Grafen zurechtwies, und wie er

nachher an unserem Arm dem Haus, wo man seinen Vater gekränkt hatte, den Rücken kehrte, das werde ich ihm nie vergessen, und noch auf meinem Sterbebette soll mir diese Erinnerung ein Labsal sein.— Ich habe mich zu trösten versucht, ich habe gedacht, das Mädchen war ihm nicht bestimmt, er wird sie vergessen und sie ihn.— Nun kommst du mir mit deiner Entdeckung, und die wirft alle meine Berechnungen über den Haufen. Die Sache will reiflich überlegt sein. Wenn sie sich trotz des Vorgefallenen treu und ehrlich lieben, so ist auch das Spiel noch nicht verloren. Was ich thun kann, das soll geschehen, ausgenommen bleibt natürlich eine Demütigung von unserer Seite. Kopf oben, Frau!"

(*b*) Meine lieben guten Kinder!

Ihr habt mir so viel Freude gemacht mit Euren Briefen, daß ich jedem von Euch mehrere schuldig bin, und diese Schuld will ich bald abtragen. Dir, lieber Gottfried, will ich von römischen Altertümern, Dir, lieber August, von schönen Göttern und Göttinnen, Dir, braver Wilhelm, von trefflichen Gebäuden, der Rotunda und anderen, Dir, Du kernfester Adelbert, von italienischen Ochsen, Kühen, Bäumen, Dir liebes Luischen, von Gärten und hübschen Bildern, Dir, Du lieber Emil, von Weintrauben und anderen schönen Sachen schreiben. Bald kommt auch Herr Moritz zu Euch, der künftige Woche von hier wegreisen und Euch viel von Rom und mir erzählen wird. Habt ihn lieb und fragt ihn nur viel; er ist ein gar guter Fisch und ich habe ihn sehr lieb. Er kennt auch Rom recht gut und hat es durchstudiert. Die Mutter und Ihr, Ihr werdet Euch recht an ihm erfreuen; er wird Euch auch etwas mitbringen, daß Ihr mich nicht vergesset und mich lieb behaltet. Küßt ihn alle, denn ich werde ihm einen Kuß an Euch mitgeben. Auch Herr Göthe wird große Freude haben, ihn wiederzusehen; mich aber betrübt es recht sehr, daß er nicht hier bleibt, ich verliere an ihm den besten Menschen.

2. Write the imperfect indicative (2nd pers. sing.) and the past participle of:—*sehe*, *tragen*, *bleibt*, and the present indicative

(2nd pers. sing.) and the past participle of:—*sprach, ass, schien, standen, vergessen, zurechtwies, begab, ging.*

3. How do you express *since* in German:—(i) as a preposition, (ii) as a conjunction (*a*) of time, (*b*) of cause? Form sentences to illustrate your answers.

4. Distinguish between the following plurals, and give the nom. sing. with definite article:—*Gesichte, Gesichter; Laden; Läden; Worte, Wörter; Bande, Bände, Bänder.*

5. Translate in two ways "He is said to have arrived;" and in three ways "He is forsaken by all his friends."

6. How do you express in German:—(*a*) *point of time*, (*b*) *duration of time*, (*c*) *indefinite time*? Give two examples of each.

7. Translate (*at sight*):—

Mit dem Reisen in einem Eisenbahnzug ist es eine ganz wunderliche Sache, und man muß es in der That erst lernen, ehe man es ordentlich kann. Manche Leute werden mir das nicht glauben und sagen: „Was ist aber dabei zu lernen? Ich löse mir eben ein Billet, gebe meine Sachen auf, setze mich ein und fahre dann mit fort — das kann ein jeder." — Allerdings, und er reist dann ebenso rasch als die Übrigen — aber wie? Zehn gegen eins, daß er in ein dichtgefülltes Coupé kommt, wo er nicht einmal die Füße ausstrecken kann; möglicherweise hat er auch eine Dame, mit einem schreienden Kind auf dem Schoß, gegenüber, während ein kleiner Bursche von fünf oder sechs Jahren ununterbrochen über seine Füße nach dem Fenster klettert und ihm dabei ein angebissenes Butterbrot mit der gestrichenen Seite auf die Kniee drückt.

8. Translate into German:—

(*a*) In the last years of his life Frederick the Great seldom came to Berlin. As soon as he appeared the citizens came out

before their doors and took off their caps. The king returned their greetings pleasantly, then rode on to the palace.

(*b*) Anybody can blame others; only the wise man seeks for and immediately recognizes the Good. I should advise you to follow the example of my old school teacher, who never punished us, until he saw that it was impossible to accomplish (*erreichen*) his purpose in any other way.

(*c*) When you hear a man say "I sent for my tailor and had him make me a new coat," you may be sure that he is a European, for we Americans are not accustomed to order (*bestellen*) our coats in that way. A man who sent for his tailor in this town might receive an unpleasant reply.

(*d*) Go straight ahead until you come to the Town Hall; then turn to the left, go around the corner and take the first street on the right, which will lead you to Cathedral Square.

(*e*) I would at once give you the necessary money, but I must first get some, as I have just paid a bill.

(*f*) These peasants dine at twelve o'clock and go to bed before nine. In some countries dinner takes place as early as half-past ten in the morning. The farmers get up with the sun, even in the months in which it rises earliest.

For Candidates from the Provinces of Ontario and Nova Scotia.

9. Translate into English:—

(*a*) „Du dauerſt mich, ſo ſchlecht Du auch biſt," ſprach das Männlein nach einigem Nachdenken. „Aber weil Dein Wunſch nicht thöricht iſt, ſo kann ich Dir wenigſtens meine Hülfe nicht verſagen. So höre. Dein Herz konnſt Du mit keiner Gewalt mehr bekommen, wohl aber mit Liſt, und es wird vielleicht nicht ſchwer halten; denn Michel bleibt doch nur der dumme Michel, obgleich er ſich ungemein klug dünkt. So gehe denn geraden Weges zu ihm hin und thue, wie ich Dir heiße!" Und nun unterrichtete er ihn in

allem und gab ihm ein Kreuzlein aus reinem Glas: „Am Leben kann er Dir nicht schaden, und er wird Dich frei lassen, wenn Du ihm dies vorhalten und dazu beten wirst. Und hast Du dann was Du verlangt hast, erhalten, so komm wieder zu mir an diesen Ort."

Peter Munk nahm das Kreuzlein, prägte sich alle Worte ins Gedächtnis und ging weiter nach Holländer-Michels Behausung. Er rief dreimal seinen Namen, und alsobald stand der Riese vor ihm.

(*b*) Wer durch Schwaben reist, der sollte nie vergessen, auch ein wenig in den Schwarzwald hineinzuschauen; nicht der Bäume wegen, obgleich man nicht überall solch' unermeßliche Menge herrlich aufgeschossener Tannen findet, sondern wegen der Leute, die sich von den andern Menschen rings umher merkwürdig unterscheiden. Sie sind größer als gewöhnliche Menschen, breitschultrig, von starken Gliedern, und es ist, als ob der stärkende Duft, der Morgens durch die Tannen strömt, ihnen von Jugend auf einen freieren Atem, ein klareres Auge und einen festeren, wenn auch rauheren Mut als den Bewohnern der Stromthäler und Ebenen gegeben hätte.

PHYSIOGRAPHY.

ARTS AND APPLIED SCIENCE.

FRIDAY, SEPT. 21:—AFTERNOON, 2 TO 3.30.

1. Why is Montreal hotter in summer than in winter?

Montreal has about the same latitude as Bordeaux. Why has it a severer winter and hotter summer?

2. State briefly what you know of the Earth considered as a *magnet*. In the Gulf of St. Lawrence the "North" indicated by the compass is found to change every few miles. How is this?

3. Account for the colours of a brilliant sunset.

4. Give the facts about the Trade Winds. How do you account for them? How do the "doldrums" and the "horse latitudes" fit into your theory?

5. "A series of Low and High Pressure areas follow each other at intervals of a few days across North America from West to East." How are

these pressures observed ? Compare these areas as to (*a*) whether the winds blow towards or from them ; (*b*) whether the air is rising or falling over them ; (*c*) likelihood of clouds and rain ; (*d*) temperature.

6. What do you know of the nature and method of formation of (*a*) quartz, (*b*) chalk, (*c*) coal ?

7. Briefly describe instruments used to determine the *rainfall, speed of the wind, humidity of the atmosphere.*

BOTANY.

ARTS AND APPLIED SCIENCE.

FRIDAY, SEPTEMBER 21ST :—Afternoon, 2 TO 5.

1. Compare a wheat grain and a bean seed, describing the germination of each.

2. Write a short account of the arrangement of leaves.

3. Distinguish between the Angiosperms and Gymnosperms, and describe a member of the former class.

4. Describe those changes which take place in the ovule after fertilization.

5. Give an account of the dispersal of fruits and seeds.

6. Describe the movement of water in plants and of those adaptations designed for its regulation.

7. Discuss the periodic movement of leaves and flowers.

8. Describe fully, and give the scientific name of the family, genus and species of two of the following plants :

(*a*) Common mallow.
(*b* Catnip.
(*c*) Trillium.

CHEMISTRY.

ARTS, APPLIED SCIENCE, AND MEDICINE.

FRIDAY, SEPTEMBER 21ST :—AFTERNOON, 2 TO 5.

1. State what you know with regard to the chemistry of the atmosphere.

2. What elements constitute the chlorine family ? Compare them as to properties.

3. Give the properties of carbon dioxide. How many litres of the gas are evolved when 100 grammes of calcium carbonate are dissolved in hydrochloric acid?

4. Describe the preparation and properties of nitric acid.

5. Write chemical equations illustrating the changes that take place in any two of the following cases:—(*a*) When sodium is dropped upon water. (*b*) When ferrous sulphide is dissolved in dilute sulphuric acid. (*c*) When common salt and sulphuric acid are heated together.

6. Explain the relationship of acids, bases and salts.

7. Give the formula of each of the following compounds:—Potassium chlorate, zinc sulphate, copper nitrate, nitrogen peroxide, sal-ammoniac.

8. How is ordinary phosphorus prepared? How converted into red phosphorus? What are the distinctive properties of the two forms?

9. State what you know with regard to the properties and uses of sulphur dioxide.

PHYSICS.

ARTS, APPLIED SCIENCE, AND MEDICINE.

FRIDAY, SEPT. 21: AFTERNOON, 2 TO 3 30.

1. What is a molecule? How do you conceive the molecules to be behaving in (*a*) a block of ice, (*b*) the water formed when the ice is melted, (*c*) the steam generated when the water boils?

2. Arrange in order of *hardness*:—Quartz, Calcite, Topaz, Feldspar, Talc, Gypsum, Corundum.

3. Give instances of *Ductility*. Why are cables made of twisted iron wires instead of solid metal?

4. State Boyle's Law.

A long U-shaped tube is filled with mercury to a certain height, and one end is then closed. Mercury is poured into the other limb till the enclosed air, which previously occupied 20 inches of the tube, has shrunk to 16.6 inches. The difference of level of the mercury in the two tubes is then found to be 5.8 inches. What is the height of the barometer?

5. An empty cubical box, one foot in the edge, is sunk till its base (horizontal) is 12 feet below the surface of a lake, by hanging to it a mass of lead. Calculate the total pressure (1) on its base, (2) on the top, and find their difference.

If the box weighs 18 lbs. in air, how much must the lead weigh *in water* just to keep it there? Would the same mass of lead hold it at 24 feet depth?

6. Describe Atwood's Machine.

If the two large weights are each 7.5 ounces, and the rider 1 ounce, how far will the weights travel in 2 seconds? If the rider is caught off at this point, how far will they travel in the next two seconds?

7. A weight of 240 lbs. is hung from a light pole 9 ft. long, at a distance of 4 ft. from one end. Two men lift the ends of the pole. How is the weight divided between them?

8. Draw a diagram of the apparatus for fixing the boiling point of a mercury thermometer, and point out the reasons for so constructing it.

Express 400 ° F. in centigrade degrees.

9. Explain why (*a*) you can feel a slight draught of air better by moistening the hand, (*b*) a greenhouse keeps plants warm though no fire be lit.

FACULTY OF ARTS.

FIRST YEAR EXHIBITION.

FIRST YEAR EXHIBITIONS.

GREEK TRANSLATION AT SIGHT.

MONDAY, SEPTEMBER 24TH :—MORNING, 9 TO 10.

ὁ δὲ Κυαξάρης πέμπων πρὸς τὸν Κῦρον ἔλεγεν ὅτι ἤδη καιρὸς εἴη ἄγειν ἐπὶ τοὺς πολεμίους· εἰ γὰρ νῦν, ἔφη, ἔτι ὀλίγοι εἰσὶν οἱ ἔξω τῆς πόλεως, ἐν ᾧ ἂν προσίωμεν πολλοὶ ἔσονται· μὴ οὖν ἀναμείνωμεν ἕως ἂν πλείους ἡμῶν γένωνται. ἀλλ' ἴωμεν ἕως ἔτι οἰόμεθα ῥᾳδίως ἂν αὐτῶν κρατῆσαι. ὁ δ' αὖ Κῦρος ἀπεκρίνατο. Ὦ Κυαξάρη, εἰ μὴ ὑπὲρ ἥμισυ αὐτῶν ἔσονται οἱ νικηθέντες, εὖ ἴσθι ὅτι ἡμᾶς μὲν ἐροῦσι φοβουμένους τὸ πλῆθος τοῖς ὀλίγοις ἐπελθεῖν, αὐτοὶ δὲ οὐ νομιοῦσιν νικηθῆναι, ἀλλ' ἄλλης σοι μάχης δεήσει.

GREEK BOOKS.

MONDAY, SEPTEMBER 24TH :—MORNING, 10 TO 12.

Candidates should write on A (1), *or A* (2), *or A* (3), *or A* (4)
and B
and C (1), *or C* (2), *or C* (3).
D may be substituted for B and C together, i.e. candidates offering D will only require in addition one section.

In addition to Translation, notes are required on words and phrases underlined :—

A (1) Xenophon, Anabasis I.

(*a*) ἅπαν δὲ τὸ μέσον τῶν τειχῶν ἦσαν στάδιοι τρεῖς· καὶ παρελθεῖν οὐκ ἦν βίᾳ· ἦν γὰρ ἡ πάροδος στενὴ καὶ τὰ τείχη εἰς τὴν θάλατταν καθήκοντα, ὕπερθεν δ' ἦσαν πέτραι ἠλίβατοι· ἐπὶ δὲ τοῖς τείχεσιν ἀμφοτέροις ἐφειστήκεσαν πύλαι. ταύτης ἕνεκα τῆς παρόδου Κῦρος τὰς ναῦς μετεπέμψατο, ὅπως ὁπλίτας ἀποβιβάσειεν εἴσω καὶ ἔξω τῶν πυλῶν βιασομένους τοὺς πολεμίους εἰ φυλάττοιεν ἐπὶ ταῖς Συρίαις πύλαις, ὅπερ ᾤετο ποιήσειν ὁ Κῦρος τὸν Ἀβροκόμαν, ἔχοντα πολὺ στράτευμα.

(*β*) Τί οὖν, ἔφη ὁ Κῦρος, ἀδικηθεὶς ὑπ' ἐμοῦ νῦν τὸ τρίτον ἐπιβουλεύων μοι φανερὸς γέγονας; εἰπόντος δὲ τοῦ Ὀρόντα ὅτι οὐδὲν ἀδικηθείς, ἠρώτησεν ὁ Κῦρος αὐτόν, Ὁμολογεῖς οὖν περὶ ἐμὲ ἄδικος γεγενῆσθαι; Ἦν γὰρ ἀνάγκη, ἔφη, ὁ Ὀρόντας. ἐκ τούτου πάλιν ἠρώτησεν ὁ Κῦρος, Ἔτι οὖν ἂν γένοιο τῷ ἐμῷ ἀδελφῷ πολέμιος, ἐμοὶ δὲ φίλος καὶ πιστός; ὁ δὲ ἀπεκρίνατο ὅτι οὐδ' εἰ γενοίμην, ὦ Κῦρε, σοί γ' ἄν ποτε ἔτι δόξαιμι.

A (2) Xenophon, Anabasis II.

(*a*) Ἦν δὲ αὕτη ἡ στρατηγία οὐδὲν ἄλλο δυναμένη ἢ ἀποδρᾶναι ἢ ἀποφυγεῖν· ἡ δὲ τύχη ἐστρατήγησε κάλλιον. ἐπεὶ γὰρ ἡμέρα ἐγένετο, ἐπορεύοντο ἐν δεξιᾷ ἔχοντες τὸν ἥλιον, λογιζόμενοι ἥξειν ἅμα ἡλίῳ δύνοντι εἰς κώμας τῆς Βαβυλωνίας χώρας· καὶ τοῦτο μὲν οὐκ ἐψεύσθησαν. ἔτι δὲ ἀμφὶ δείλην ἔδοξαν πολεμίους ὁρᾶν ἱππέας· καὶ τῶν τε Ἑλλήνων οἳ μὴ ἔτυχον ἐν ταῖς τάξεσιν ὄντες εἰς τὰς τάξεις ἔθεον, καὶ Ἀριαῖος, ἐτύγχανε γὰρ ἐφ' ἁμάξης πορευόμενος διότι ἐτέτρωτο, καταβὰς ἐθωρακίζετο καὶ οἱ σὺν αὐτῷ, ἐν ᾧ δὲ ὡπλίζοντο, ἦκον λέγοντες οἱ προπεμφθέντες σκοποὶ ὅτι οὐχ ἱππεῖς εἶεν ἀλλ' ὑποζύγια νέμοιτο.

(β) ἀλλὰ χωρίων ὑμῖν ἐπιτηδείων ἐπιτίθεσθαι ἀπορεῖν ἄν σοι δοκοῦμεν; οὐ τοσαῦτα μὲν πεδία ἃ ὑμεῖς φιλια ὄντα σὺν πολλῷ πόνῳ διαπορεύεσθε, τοσαῦτα δὲ ὄρη ὁρᾶτε ὑμῖν ὄντα πορευτέα, ἃ ἡμῖν ἔξεστι προκαταλαβοῦσιν ἄπορα ὑμῖν παρέχειν, τοσοῦτοι δ' εἰσὶ ποταμοὶ ἐφ' ὧν ἔξεστιν ἡμῖν ταμιεύεσθαι ὁπόσοις ἂν ὑμῶν βουλώμεθα μάχεσθαι; εἰσὶ δ' αὐτῶν οὓς οὐδ' ἂν παντάπασι διαβαίητε, εἰ μὴ ἡμεῖς ὑμᾶς διαπορευοιμεν.

A (3) Xenophon, Anabasis III.

(α) νῦν γὰρ ἴσως καὶ ὑμεῖς αἰσθάνεσθε ὡς ἀθύμως μὲν ἤλθον ἐπὶ τὰ ὅπλα, ἀθύμως δὲ πρὸς τὰς φυλακάς· ὥστε οὕτω γ' ἐχόντων οὐκ οἶδα ὅ,τι ἄν τις χρήσαιτο αὐτοῖς εἴτε νυκτὸς δέοι εἴτε καὶ ἡμέρας. ἢν δέ τις αὐτῶν τρέψῃ τὰς γνώμας, ὡς μὴ τοῦτο μόνον ἐννοῶνται τί πείσονται ἀλλὰ καὶ τί ποιήσουσι, πολὺ εὐθυμότεροι ἔσονται. ἐπίστασθε γὰρ δὴ ὅτι οὔτε πλῆθός ἐστιν οὔτε ἰσχὺς ἡ ἐν τῷ πολέμῳ τὰς νίκας ποιοῦσα, ἀλλ' ὁπότεροι ἂν σὺν τοῖς θεοῖς ταῖς ψυχαῖς ἐρρωμενέστεροι ἴωσιν ἐπὶ τοὺς πολεμίους, τούτους ὡς ἐπὶ τὸ πολὺ οἱ ἀντίοι οὐ δέχονται.

(β) ἐπεὶ δὲ πιεζόμενοι οἱ Ἕλληνες ἐπεχείρησαν διώκειν, σχολῇ μὲν ἐπὶ τὸ ἄκρον ἀφικνοῦνται ὁπλῖται ὄντες, οἱ δὲ πολέμιοι ταχὺ ἀπεπήδων. πάλιν δὲ ὁπότε ἀπίοιεν πρὸς τὸ ἄλλο στράτευμα ταὐτὰ ἔπασχον, καὶ ἐπὶ τοῦ δευτέρου γηλόφου ταὐτὰ ἐγίγνετο, ὥστε ἀπὸ τοῦ τρίτου γηλόφου ἔδοξεν αὐτοῖς μὴ κινεῖν τοὺς στρατιώτας πρὶν ἀπὸ τῆς δεξιᾶς πλευρᾶς τοῦ πλαισίου ἀνήγαγον πελταστὰς πρὸς τὸ ὄρος.

A (4) Xenophon, Hellenica I.

(α) ἐπεὶ δ' ἐξέπλευσεν ὁ Κλέαρχος, οἱ προδιδόντες τὴν

πόλιν τῶν Βυζαντίων Κύδων καὶ Ἀρίστων καὶ Ἀναξικράτης καὶ Λυκοῦργος καὶ Ἀναξίλαος, ὃς ὑπαγόμενος θανάτου ὕστερον ἐν Λακεδαίμονι διὰ τὴν προδοσίαν ἀπέφυγεν, ὅτι οὐ προδοίη τὴν πόλιν, ἀλλὰ σώσαι, παῖδας ὁρῶν καὶ γυναῖκας λιμῷ ἀπολλυμένας, Βυζάντιος ὢν καὶ οὐ Λακεδαιμόνιος· τὸν γὰρ ἐνόντα σῖτον Κλέαρχον τοῖς Λακεδαιμονίων στρατιώταις διδόναι· διὰ ταῦτ' οὖν τοὺς πολεμίους ἔφη εἰσαγαγέσθαι, οὐκ ἀργυρίου ἕνεκα οὐδὲ διὰ τὸ μισεῖν Λακεδαιμονίους· ἐπεὶ δὲ αὐτοῖς παρεσκεύαστο, νυκτὸς ἀνοίξαντες τὰς πύλας τὰς ἐπὶ τὸ Θρᾴκιον καλουμένας εἰσήγαγον τὸ στράτευμα καὶ τὸν Ἀλκιβιάδην.

(β) δεῖ δ' ὑμᾶς ἐξηγεῖσθαι τοῖς ἄλλοις συμμάχοις ὅπως ἂν τάχιστά τε καὶ μάλιστα βλάπτωμεν τοὺς πολεμίους, ἕως ἂν οἱ ἐκ Λακεδαίμονος ἥκωσιν, οὓς ἐγὼ ἔπεμψα χρήματα ἄξοντας, ἐπεὶ τὰ ἐνθάδε ὑπάρχοντα Λύσανδρος Κύρῳ ἀποδοὺς ὡς περιττὰ ὄντα οἴχεται· Κῦρος δὲ ἐλθόντος ἐμοῦ ἐπ' αὐτὸν ἀεὶ ἀνεβάλλετό μοι διαλεχθῆναι, ἐγὼ δ' ἐπὶ τὰς ἐκείνου θύρας φοιτᾶν οὐκ ἐδυνάμην ἐμαυτὸν πεῖσαι.

B. Homer, Odyssey XV.

(α) ἀλλὰ μέν', εἰς ὅ κε δῶρα φέρων ἐπιδίφρια θείω
καλά, σὺ δ' ὀφθαλμοῖσιν ἴδῃς, εἴπω δὲ γυναιξὶν
δεῖπνον ἐνὶ μεγάροις τετυκεῖν ἅλις ἔνδον ἐόντων· —
ἀμφότερον, κῦδός τε καὶ ἀγλαΐη καὶ ὄνειαρ,
δειπνήσαντας ἴμεν πολλὴν ἐπ' ἀπείρονα γαῖαν· —
εἰ δ' ἐθέλεις τοαφθῆναι ἀν' Ἑλλάδα καὶ μέσον Ἄργος,
ὄφρα τοι αὐτὸς ἕπωμαι, ὑποζεύξω δέ τοι ἵππους
ἄστεα δ' ἀνθρώπων ἡγήσομαι· οὐδέ τις ἡμέας
αὖτως ἀππέμψει, δώσει δέ τι ἔν γε φέρεσθαι.

ἠέ τινα τριπόδων εὐχάλκων ἠὲ λεβήτων
ἠὲ δύ' ἡμιόνους ἠὲ χρύσειον ἄλεισον.

(β) καί κ' ἐλθὼν πρὸς δώματ' Ὀδυσσῆος θείοιο
ἀγγελίην εἴποιμι περίφρονι Πηνελοπείῃ
καί κε μνηστήρεσσιν ὑπερφιάλοισι μιγείην.
εἴ μοι δεῖπνον δοῖεν ὀνείατα μυρί' ἔχοντες,
αἶψά κεν εὖ δρώοιμι μετὰ σφίσιν ὅττι θέλοιεν.
ἐκ γάρ τοι ἐρέω, σὺ δέ σύνθεο καί μευ ἄκουσον·
Ἑρμείαο ἕκητι διακτόρου, ὅς ῥά τε πάντων
ἀνθρώπων ἔργοισι χάριν καὶ κῦδος ὀπάζει,
δρηστοσύνῃ οὐκ ἄν μοι ἐρίσσειε βροτὸς ἄλλος,
πῦρ τ' εὖ νῆσαι διά τε ξύλα δανὰ κεάσσαι
δαιτρεῦσαί τε καὶ ὀπτῆσαι καὶ οἰνοχοῆσαι,
οἷά τε τοῖς ἀγαθοῖσι παραδρώουσι χέρηες.

C. (1) Euripides, Hecuba (Sidgwick's Scenes).

(α) τί γάρ με δεῖ ζῆν; ἦ πατὴρ μὲν ἦν ἄναξ
Φρυγῶν ἁπάντων· τοῦτό μοι πρῶτον βίου·
ἔπειτ' ἐθρέφθην ἐλπίδων καλῶν ὕπο,
βασιλεῦσι νύμφη, ζῆλον οὐ σμικρὸν γάμων
ἔχουσ', ὅτου δῶμ' ἑστίαν τ' ἀφίξομαι·
νῦν δ' εἰμὶ δούλη. πρῶτα μέν με τοὔνομα
θανεῖν ἐρᾶν τίθησιν, οὐκ εἰωθὸς ὄν·
ἔπειτ' ἴσως ἂν δεσποτῶν ὠμῶν φρένας
τύχοιμ' ἄν, ὅστις ἀργύρου μ' ὠνήσεται,
τὴν Ἕκτορός τε χἀτέρων πολλῶν κάσιν,
προσθεὶς δ' ἀνάγκην σιτοποιὸν ἐν δόμοις,
σαίρειν τε δῶμα κερκίσιν τ' ἐφεστάναι
λυπρὰν ἄγουσαν ἡμέραν μ' ἀναγκάσει.

(β) εἴ μοι γένοιτο φθόγγος ἐν βραχίοσι
καὶ χερσὶ καὶ κόμαισι καὶ ποδῶν βάσει,

ἢ Δαιδάλου τέχναισιν ἢ θεῶν τινος,
ὡς πάνθ' ὁμαρτῆ σῶν ἔχοιτο γουνάτων
κλαίοντ', ἐπισκήπτοντα παντοίους λόγους·
ὦ δέσποτ', ὦ μέγιστον Ἕλλησιν φάος,
πιθοῦ, παράσχες χεῖρα τῇ πρεσβύτιδι
τιμωρόν, εἰ καὶ μηδέν ἐστιν, ἀλλ' ὅμως.
ἐσθλοῦ γὰρ ἀνδρὸς τῇ δίκῃ θ' ὑπηρετεῖν
καὶ τοὺς κακοὺς δρᾶν πανταχοῦ κακῶς ἀεί.

C. (2) Homer, Iliad I.

(α) Μὴ δ' οὕτως, ἀγαθός περ ἐών, θεοείκελ' Ἀχιλλεῦ,
κλέπτε νόῳ· ἐπεὶ οὐ παρελεύσεαι οὐδέ με πείσεις.
Ἦ ἐθέλεις, ὄφρ' αὐτὸς ἔχῃς γέρας, αὐτὰρ ἔμ' αὖτως
ἧσθαι δευόμενον, κέλεαι δ με τήνδ ἀποδοῦναι;
ἀλλ' εἰ μὲν δώσουσι γέρας μεγάθυμοι Ἀχαιοί,
ἄρσαντες κατὰ θυμὸν, ὅπως ἀντάξιον ἔσται—·
εἰ δέ κε μὴ δώωσιν, ἐγὼ δέ κεν αὐτὸς ἕλωμαι
ἢ τεὸν ἢ Αἴαντος ἰὼν γέρας, ἢ Ὀδυσῆος
ἄξω ἑλών· ὃ δέ κεν κεχολώσεται, ὅν κεν ἵκωμαι.

(β) Τὴν μὲν γάρ σὺν νηῒ θοῇ ἐλίκωπες Ἀχαιοὶ
ἐς Χρύσην πέμπουσιν, ἄγουσι δὲ δῶρα ἄνακτι·
τὴν δὲ νέον κλισίηθεν ἔβαν κήρυκες ἄγοντες
κούρην Βρισῆος, τήν μοι δόσαν υἷες Ἀχαιῶν.
Ἀλλὰ σὺ, εἰ δύνασαί γε, περίσχεο παιδὸς ἑῆος·
ἐλθοῦσ' Οὔλυμπόνδε Δία λίσαι, εἴποτε δὴ τι
ἢ ἔπει ὤνησας κραδίην Διὸς ἠὲ καὶ ἔργῳ.
Πολλάκι γὰρ σέο πατρὸς ἐνὶ μεγάροισιν ἄκουσα
εὐχομένης, ὅτ' ἔφησθα κελαινεφέϊ Κρονίωνι
οἴῃ ἐν ἀθανάτοισιν ἀεικέα λοιγὸν ἀμῦναι,
ὁππότε μιν ξυνδῆσαι Ὀλύμπιοι ἤθελον ἄλλοι,
Ἥρη τ' ἠδὲ Ποσειδάων καὶ Παλλὰς Ἀθήνη.

C. (3) Homer, Iliad VI.

(α) Δεύτερον αὖ Σολύμοισι μαχήσατο κυδαλίμοισιν·
καρτίστην δὴ τήνγε μάχην φάτο δύμεναι ἀνδρῶν.
Τὸ τρίτον αὖ κατέπεφνεν Ἀμαζόνας ἀντιανείρας.
Τῷ δ' ἄρ' ἀνερχομένῳ πυκινὸν δόλον ἄλλον ὕφαινεν·
κρίνας ἐκ Λυκίης εὐρείης φῶτας ἀρίστους
εἶσε λόχον· τοὶ δ' οὔτι πάλιν οἶκόνδε νέοντο·
πάντας γὰρ κατέπεφνεν ἀμύμων Βελλεροφόντης.
Αλλ' ὅτε δὴ γίγνωσκε θεοῦ γόνον ἠὺν ἐόντα,
αὐτοῦ μιν κατέρυκε, δίδου δ' ὅγε θυγατέρα ἦν·
δῶκε δέ οἱ τιμῆς βασιληΐδος ἥμισυ πάσης·
καὶ μέν οἱ Λύκιοι τέμενος τάμον, ἔξοχον ἄλλων,
καλὸν φυταλιῆς καὶ ἀρούρης, ὄφρα νέμοιτο.

(β) Ἕκτορ, ἐπεὶ μάλ' ἄνωγας ἀληθέα μυθήσασθαι·
οὔτε πη ἐς γαλόων, οὔτ' εἰνατέρων εὐπέπλων,
οὔτ, ἐς Ἀθηναίης ἐξοίχεται, ἔνθα περ ἄλλαι
Τρωαὶ ἐϋπλόκαμοι δεινὴν θεὸν ἱλάσκονται·
ἀλλ' ἐπὶ πύργον ἔβη μέγαν Ἰλίου, οὕνεκ' ἄκουσεν,
τείρεσθαι Τρῶας, μέγα δὲ κράτος εἶναι Ἀχαιῶν.
Ἡ μὲν δὴ πρὸς τεῖχος ἐπειγομένη ἀφικάνει,
μαινομένῃ εἰκυῖα· φέρει δ' ἅμα παῖδα τιθήνη.
Ἡ ῥα γυνὴ ταμίη· ὁ δ' ἀπέσσυτο δώματος Ἕκτωρ,
τὴν αὐτὴν ὁδὸν αὖτις, ἐϋκτιμένας κατ' ἀγυιάς.

D. Sophocles, Ajax :—

(α) ΟΔ. καὶ πῶς ἐπέσχε χεῖρα μαιμῶσαν φόνου;
ΑΘ. ἐγώ σφ' ἀπείργω, δυσφόρους ἐπ' ὄμμασι
γνώμας βαλοῦσα τῆς ἀνηκέστου χαρᾶς,
καὶ πρός τε ποίμνας ἐκτρέπω σύμμικτά τε
λείας ἄδαστα βουκόλων φρουρήματα·

ἐνθ' εἰσπεσὼν ἔκειρε πολύκερων φόνον
κύκλῳ ῥαχίζων· κἀδόκει μὲν ἔσθ' ὅτε
δισσοὺς Ἀτρείδας αὐτόχειρ κτείνειν ἔχων,
ὅτ' ἄλλοτ' ἄλλον ἐμπίτνων στρατηλατῶν.
ἐγὼ δὲ φοιτῶντ' ἄνδρα μανιάσιν νόσοις
ὤτρυνον, εἰσέβαλλον εἰς ἔρκη κακά.

(β) καί μοι δυσθεράπευτος Αἴ-
ας ξύνεστιν ἔφεδρος, ὤμοι
μοι, θείᾳ μανίᾳ ξύναυλος·
ὃν ἐξεπέμψω μανίᾳ ξύναυλος·
ἦν ἐξεπέμψω πρὶν δή ποτε θουρίῳ
κρατοῦντ' ἐν Ἄρει· νῦν δ' αὖ φρενὸς οἰοβώτας
φίλοις μέγα πένθος ηὕρηται.
τὰ πρὶν δ' ἔργα χεροῖν
μεγίστας ἀρετᾶς
ἄφιλα παρ' ἀφίλοις ἔπεσ' ἔπεσε μελέοις Ἀτρεί-
δαις.

(γ) αἰτήσομαί δέ σ' οὐ μακρὸν γέρας λαχεῖν.
πέμψον τιν' ἡμῖν ἄγγελον, κακὴν φάτιν
Τεύκρῳ φέροντα, πρῶτος ὥς με βαστάσῃ
πεπτῶτα τῷδε περὶ νεορράντῳ ξίφει,
καὶ μὴ πρὸς ἐχθρῶν του κατοπτευθεὶς πάρος
ῥφθιῶ κυσὶν πρόβλητος οἰωνοῖς θ' ἕλωρ.
τοσαῦτά σ', ὦ Ζεῦ, προστρέπω· καλῶ δ' ἅμα
πομπαῖον Ἑρμῆν χθόνιον εὖ με κοιμίσαι,
ξὺν ἀσφαδάστῳ καὶ ταχεῖ πηδήματι,
πλευρὰν διαρρήξαντα τῷδε φασγάνῳ.

(δ) καὶ μὴν ἐς αὐτὸν καιρὸν οἵδε πλησίοι
πάρεισιν ἀνδρὸς τοῦδε παῖς τε καὶ γυνή,
τάφον περιστελοῦντε δυστήνου νεκροῦ.

ὦ παῖ, πρόσελθε δεῦρο, καὶ σταθεὶς πέλας
ἱκέτης ἔφαψαι πατρός, ὅς σ' ἐγείνατο.
θάκει δὲ προστρόπαιος ἐν χεροῖν ἔχων
κόμας ἐμὰς καὶ τῆσδε καὶ σαυτοῦ τρίτου,
ἱκτήριον θησαυρόν· εἰ δέ τις στρατοῦ
βίᾳ σ' ἀποσπάσειε τοῦδε τοῦ νεκροῦ,
κακὸς κακῶς ἄθαπτος ἐκπέσοι χθονός,
γένους ἅπαντος ῥίζαν ἐξημημένος,
αὕτως ὅπωσπερ τόνδ' ἐγὼ τέμνω πλόκον.

GREEK GRAMMAR, COMPOSITION, HIGHER COMPOSITION AND HIGHER SIGHT TRANSLATION.

MONDAY, SEPTEMBER 24TH :—AFTERNOON, 2 TO 5.

A. 1. Give acc. sing. and gen. plur., giving all genders of adjectives and pronouns, of :—θρίξ, ναῦς, λεώς, λέων, οὗτος, πρᾶος, μέγας, ὅστις.

2. Write down :—2nd pers. sing. aor. ind. mid. ; 1st pers. plur. fut. ind. act. ; 2nd pers. plur. aor. opt. pass. ; 3rd pers. sing. perf. imperat. pass. ; aor. inf. pass. ; dat. plur. (all genders) aor. part. act. of the following verbs :—καταβάλλω, ἀφίστημι, ἐπιχρυσόω, διαπλέκω, ἀφαιρέω.

3. Under what circumstances is ἄν found in Attic prose (*a*) in combination with relatives and relative particles, (*b*) with the infinitive ?

B. Translate into Greek :—

1. The general ordered all his own men to march as quickly as possible.

2. These ships will sail to the same city.

3. They said that they had killed all who came out of the walls.

4. After conquering the barbarians, Cyrus sent messengers, bearing gifts, to the king of the neighbouring country.

5. We do not know which of the two women will come.

6. It is not in my power to give you as much as you want to have.

7. While the soldiers were fighting, the rest of the citizens fled towards to sea.

8. Do not injure these men, who wish to help you.

C. For Higher Composition :—

After commanding the fleet to sail to the same place where the army had already arrived, he chose out those of his soldiers whom he knew to be most trustworthy, and went thither himself. And he found the enemy encamped on a mountain; for they had decided to await the Greeks there and not descend into the plain. Fearing, therefore, that if he attacked by day the enemy would kill many of his men by means of missiles and stones, he sent round a few light-armed men by night. And, a little before daybreak, these approached shouting loudly and bearing torches. And so the enemy, thinking that a large force had surrounded them, surrendered.

D. For Higher Sight Translation :—

ἐπειδὴ δὲ ἡ μὲν νίκη σὺν Ἀγησιλάῳ ἐγένετο, τετρωμένος δ' αὐτὸς προσηνέχθη πρὸς τὴν φάλαγγα, προσελάσαντές τινες τῶν ἱππέων λέγουσιν αὐτῷ ὅτι τῶν πολεμίων ὀγδοήκοντα σὺν τοῖς ὅπλοις ὑπὸ τῷ ναῷ εἰσι, καὶ ἠρώτων τι χρὴ ποιεῖν. ὁ δὲ καίπερ πολλὰ τραύματα ἔχων ὅμως οὐκ

ἐπελάθετο τοῦ θείου, ἀλλ' ἐᾶν τε ἀπιέναι ὅποι βούλοιντο ἐκέλευε καὶ ἀδικεῖν οὐκ εἴα, καὶ προπέμψαι ἐπέταξε τοὺς ἀμφ' αὐτὸν ἱππέας ἕστε ἐν τῷ ἀσφαλεῖ ἐγένοντο.

GREEK COMPOSITION AND TRANSLATION AT SIGHT.

MONDAY, SEPTEMBER 24TH :—MORNING, 10 TO 12.

1. Translate into Greek :—

(*a*) Cyrus decided to subdue the cities which had revolted, and to put to death all whom he found in them.

(*b*) I should not wish to do service to the enemies of my country.

(*c*) He announced to all who were present that they must attack at once.

(*d*) When he had led his army past the river, he remained there three days.

(*e*) If the gods are willing, we shall to-day win a great victory.

(*f*) Soldiers, obey your generals and drive out those who have have invaded your own country.

(*g*) He was killed after fighting bravely and saving many of his comrades.

(*h*) Let us honour those who rule wisely.

2. Translate into English :—

ἐπεὶ δὲ πρὸς Βαβυλῶνα ἦν ὁ Κῦρος, περιέστησε μὲν πᾶν τὸ στράτευμα περὶ τὴν πόλιν, ἔπειτα αὐτὸς περιήλαυνε τὴν πόλιν σὺν τοῖς φίλοις. ἐπεὶ δὲ εἶδε πάντα τὰ τείχη, ἀπάγειν παρεσκευάσατο τὴν στρατίαν ἀπὸ τῆς πόλεως ἐξελθὼν δέ τις εἶπεν ὅτι ἐπιτίθεσθαι μέλλοιεν αὐτῷ, ὅποτε ἀπάγοι τὸ στράτεμα· ὀρῶσι γάρ, ἔφη, αὐτοῖς ἀπὸ τοῦ τεί-

χους ἀσθενὴς ἐδόκει εἶναι ἡ φάλαγξ· καὶ οὐδὲν θαυμαστὸν ἦν οὕτως ἔχειν· περὶ γὰρ πολὺ τεῖχος κυκλουμένοις ἀνάγκη ἦν ἐπ' ὀλίγων τὸ βάθος γενέσθαι τὴν φάλαγγα. ἀκούσας οὖν ὁ Κῦρος ταῦτα, πάντας τοὺς ἑαυτοῦ ἐκελευσεν εἰς ἓν σινιέναι, ὥστε ἑτοίμους εἶναι, εἰ οἱ πολέμιοι προσβάλλοιεν.

LATIN AUTHORS.

MONDAY, SEPTEMBER 17TH :—9 TO 11 A.M.

NOTE.—Candidates for Matriculation will translate (explaining the grammatical construction of words printed in italics) *any two* of the following sections (*A*), (*B*), (*C*). Candidates for First Year Exhibitions will do (*A*), (*B*) and (*C*).

(A) CAESAR, DE BELLO GALLICO I and II, *or*
CAESAR, DE BELLO GALLICO V and VI.

Eodem die ab exploratoribus certior factus hostes sub monte *consedisse* milia passuum ab ipsius castris octo, qualis esset natura montis et qualis in circuitu ascensus qui *cognoscerent* misit. Renuntiatum est facilem esse. De tertia vigilia T. Labienum legatum pro praetore cum duabus legionibus et his ducibus qui iter cognoverant summum iugum montis ascendere iubet; quid sui consilii sit ostendit. Ipse de quarta vigilia eodem itinere quo hostes ierant ad eos contendit equitatumque omnem ante se mittit. P. Considius, qui *rei militaris* peritissimus habebatur, et in exercitu L. Sullae et postea in M. Crassi fuerat, cum exploratoribus praemittitur.—BK. I.

Legionis nonae et decimae milites, ut in sinistra parte acie constiterant, *pilis* emissis cursu ac lassitudine exanimatos vulneribusque confectos Atrebates (nam his ea pars obvenerat) celeriter ex loco superiore in flumen compulerunt et transire conantes insecuti gladiis magnam partem eorum impeditam interfecerunt. Ipsi *transire* flumen non dubitaverunt, et in locum iniquum progressi rursus resistentes hostes redintegrato proelio in fugam coniecerunt. Item alia in parte diversae duae legiones, undecima et octava, profligatis Veromanduis, quibuscum erant congressi, ex loco superiore in ipsis fluminis ripis proeliabantur.—BK. II.

Hac in utramque partem *disputatione* habita cum a Cotta primisque ordinibus acriter *resisteretur*, Vincite, inquit, si ita vultis, Sabinus, et id clariore voce ut magna pars militum exaudiret: neque is sum, inquit, qui gravissime ex vobis mortis periculo *terrear:* hi sapient, et si gravius quid acciderit, abs te rationem reposcent; qui, si per te liceat, perendino die cum proximis hibernis coniuncti communem cum reliquis belli casum sustineant, non reiecti et relegati longe ab ceteris aut ferro aut fame intereant.—Bk. V.

Germani desperata *expugnatione* castrorum, quod nostros iam constitisse in munitionibus videbant, cum ea praeda quam in silvis deposuerant trans Rhenum sese receperunt. Ac tantus fuit etiam post discessum hostium terror ut ea nocte, cum C. Volusenus missus cum equitatu ad castra venisset, fidem non faceret adesse cum incolumi Caesarem exercitu. Sic omnium animos timor praeoccuparverat ut paene alienata mente deletis omnibus copiis equitatum [tantum] se ex fuga recepisse dicerent, neque *incolumi* exercitu Germanos castra oppugnaturos fuisse contenderent. Quem timorem Caesaris adventus sustulit.—Bk. VI.

(B) Virgil, Aeneid I, *or* II, *or* V, *or* VI.

Olli subridens hominum sator atque deorum
vultu, quo caelum tempestatesque serenat,
oscula libavit natae; dehinc talia fatur:
Parce *metu*, Cytherea; manent immota tuorum
fata tibi; cernes urbem et promissa Lavini
moenia, sublimemque feres ad sidera caeli
magnanimum Aenean; neque me sententia vertit.

Hunc Phœnissa tenet Dido, blandisque moratur
Vocibus; et vereor, quo se Iunonia *vertant*
Hospitia; haud tanto cessabit *cardine* rerum.
Quocirca capere ante dolis et cingere flamma
Reginam meditor, ne quo se numine *mutet;*
Sed magno Aeneae mecum teneatur amore.
Qua facere id possis, nostram nunc accipe mentem:
Regius accitu cari genitoris ad urbem
Sidoniam puer ire parat, mea maxima cura.—Bk. I.

Atque ubi iam patriae perventum ad limina sedis
antiquasque domos, genitor, quem tollere in altos
optabam primum montes, primumque petebam,
abnegat *excisa* vitam producere Troia

exsliuimque pati. Vos o, quibus integer *aevi*
sanguis, ait, solidaeque suo stant *robore* vires,
vos agitate fugam
Me si caelicolae *voluissent* ducere vitam,
has mihi servassent sedes. Satis una superque
vidimus excidia, et captae superavimus urbi.
Sic o, sic positum affati discedite corpus.
Ipse manu mortem inveniam ; miserebitur hostis,
exuviasque petet. Facilis iactura sepulcri.
Iam pridem invisus divis et inutilis *annos*
demoror, ex quo me divum pater atque hominum rex
fulminis afflavit ventis, et contigit igni.—Bk. II.

Haec fatus, duplicem ex humeris reiecit amictum,
et magnos membrorum artus, magna ossa lacertosque
exuit, atque ingens media consistit *arena*.
Tum satus *Anchisa* cestus pater extulit aequos,
et paribus palmas anborum innexuit armis.
Constitit in digitos extemplo arrectus uterque,
brachiaque ad superas interritus extuli auras.
Abduxere retro longe capita ardua ab ictu ;
immiscentque manus *manibus*, pugnamque lacessunt,
Ille pedum melior *motu* fretusque iuventa,
hic membris et mole valens ; sed tarda *trementi*
genua labant ; vastos quatit aeger anhelitus artus.—Bk. V.

Ecce gubernator sese Palinurus agebat :
qui Libyco nuper cursu, dum sidera servat,
exciderat *puppi* mediis effusus in undis.
Hunc ubi vix multa maestum cognovit in umbra,
sic prior alloquitur : Quis te, Palinure, *deorum*
eripuit *nobis*, medioque sub aequore mersit ?
Dic age. Namque mihi, fallax haud ante repertus,
hoc uno responso animum delusit Apollo,
qui fore te ponto incolumem, *fines* que canebat
venturum Ausonios. En haec promissa fides est ?
Ille autem : Neque te Phoebi cortina fefellit,
dux Anchisiada, nec me deus aequore mersit.
Namque gubernaclum, multa vi forte *revulsum*,
cui datus haerebam custos, cursusque regebam,
praecipitans traxi mecum.—Bk. V

(C) CICERO, IN CATILINAM III, IV., *or*
HORACE, ODES III, *or*
TACITUS, AGRICOLA.

Ac ne longum *sit*, Quirites, tabellas proferri iussimus, quae a quoque dicebantur datae. Primum ostendimus Cethego signum: cognovit. Nos linum incidimus: legimus. Erat scriptum ipsius manu Allobrogum senatui et populo, sese, quae eorum legatis *confirmasset*, esse facturum: orare, it item illi facerent, quae sibi legati eorum recepissent. Tum Cethegus, qui paullo ante aliquid tamen de gladiis ac sicis, quae apud ipsum erant deprehensae, respondisset dixissetque, se semper bonorum ferramentorum studiosum fuisse, recitatis litteris debilitatus atque abiectus, *conscientia* convictus, repente conticuit.—IN CAT. III.

Cogitate quantis laboribus fundatum imperium, quanta virtute stabilitam libertatem, quanta deorum, benignitate auctas exaggeratasque fortunas, una nox paene *delerit*. Id ne umquam posthac non modo non confici, sed ne cogitari quidem possit a civibus, hodierno die providendum est. Atque haec non ut vos, qui mihi studio paene praecurritis, excitarem, locutus sum; sed ut mea vox quae debet esse in re publica princeps, *officio* functa consulari, videretur.—IN CAT. IV.

Of ons *Bandusiae*, splendidior vitro,
dulci digne *mero*, non sine floribus,
cras donaberis haedo,
cui frons turgida cornibus.

primis et venerem et proelia destinat;
frustra: nam gelidos inficiet tibi
rubro *sanguine* rivos
lascivi suboles gregis.

Te flagrantis atrox hora caniculae
nescit *tangere*: tu frigus amabile
fessis vomere tauris
praebes et pecori vago.

Fies nobilium tu quoque *fontium*,
me dicente cavis impositam ilicem
saxis, unde loquaces
lymphae desiliunt tuae.

Horace, Odes III.

Haec primo statim anno comprimendo, egregiam famam *paci* circumdedit; quae vel incuria vel intolerantia priorum haud minus quam bellum timebatur. Sed ubi aestas advenit, contracto exercitu, multus in agmine laudare modestiam, disiectos coercere: loca *castris* ipse capere, aestuaria ac silvas ipse praetentare; et nihil interim apud hostes quietum pati, quo minus subitis *excursibus popularetur*: atque, ubi satis terruerat, parcendo rursus irritamenta pacis ostentare. Quibus rebus multae civitates, quae in illum diem ex aequo egerant, datis obsidibus, iram posuere, et praesidiis castellisque circumdatae tanta ratione curaque, ut nulla ante Britanniae nova pars illacessita *transierit*.— *Tacitus, Agricola.*

LATIN PROSE COMPOSITION AND TRANSLATION AT SIGHT.

MONDAY, SEPTEMBER 17TH:—9 TO 11 A.M.

NOTE.—This paper is intended for those only who do not offer the prescribed books. Candidates for matriculation will do *one* passage from each section; candidates for Exhibitions will do the whole paper.

A.

If you have been persuaded to pardon him his offences, and not to exact punishment for so many crimes, would any one impute that to you as a fault, or taunt you with your clemency and gentleness? It might perhaps have been better not to have listened to prayer; but error is one thing, wrong-doing another.

It is generally agreed among historians that this King, trained by toil and accustomed to bear with patience the frowns of fortune showed in the midst of disaster and ruin the same character as in prosperity.

B.

Advenit, o socii, nunc abeundi tempus e vita, quam reposcenti naturae, ut debitor bonae fidei, redditurus exsulto: non ut quidam opinantur, afflictus et moerens: philosophorum sententia perdoctus, quantum corpore sit beatior animus, et contemplans, quoties conditio melior a deteriore secernitur, laetandum esse potius, quam dolendum; illud quoque advertens, quod etiam dii caelestes quibus-

dam piissimis mortem tanquam summum proemium persolverunt. Sempiternum veneror numen, quod non clandestinis insidiis, nec onga morborum asperitate, vel damnatorum fine decedo: sed in medio corsu florentium gloriarum hunc merui clarum e mundo di gressum. Aequo enim judicio juxta timidus est et ignavus, qui cum non oportet, mori desiderat, et qui refugiat, cum sit opportunum.

Ammianus Marcellinus.

Iam senior Ladon Tiberinae nauta carinae
Proxima dilectis rura paravit aquis.
Quae cum saepe vagus premeret torrentibus undis
Tibris et hiberno rumperet arva lacu,
Emeritam puppim, ripa quae stabat in alta,
Implevit saxis opposuitque vadis.
Sic nimias avertit aquas. Quis credere posset?
Auxilium domino mersa carina tulit.

TRANSLATION AT SIGHT.

MONDAY, SEPTEMBER 17TH :—11 TO 12 A.M.

NOTE.—*Candidates for Matriculation will do I.; candidates for Exhibitions will do I. and II.*

I.

Condita civitate, quam ex nomine suo Romam vocavit, haec fere egit. Multitudinem finitimorum in civitatem recepit; centum ex senioribus legit, quorum consilio omnia ageret, quos senatores nominavit propter senectutem. Tum, cum uxores ipse et populus suus non haberent, invitavit ad spectaculum ludorum vicinas urbi Romae nationes atque earum virgines rapuit. Commotis bellis propter raptarum iniuriam, Caeninenses vicit, Sabinos, Veientes. Haec omnia oppida urbem cingunt. Et cum, orta subito tempestate non comparuisset, anno regni tricesimo septimo ad deos tranisse creditus est et consecratus. Deinde Romae per quinos dies senatores imperaverunt, et his regnantibus annus unus completus est.

II.

Iam gravis aequabat luctus et mutua Mavors
Funera; caedebant pariter pariterque ruebant
Victores victique; neque his fuga nota, neque illis.
Di Iovis in tectis iram miserantur inanem

Amborum, et tantos mortalibus esse labores ;
Hinc Venus, hinc contra spectat Saturnia Iuno.
Pallida Tisiphonemedia inter milia saevit.
At vero ingentem quatiens Mezentius hastam
Turbidus ingreditur campo. Quam magnus Orion.
Cum pedes incedit medii per maxuma Nerei
Stagna viam scindens, humero supereminet undas,
Aut, summis referens annosam montibus ornum,
Ingrediturque solo et caput inter nubila condit :
Talis se vastis infert Mezentius armis.
Huic contra Aenea , speculatus in agmine longo,
Obvius ire parat.

LATIN.

HIGHER COMPOSITION AND TRANSLATION AT SIGHT.

MONDAY, SEPTEMBER 17TH :—4 TO 5 P.M.

I.

After this king Porsenna made war against the Latins, and army was beaten and fled to Rome; and the Romans received them kindly and took care of those who were wounded, and sent them back safe to King Porsenna. For this the king gave back to the Romans all the rest of their hostages whom he had still with him, and also the land which they had won from the Veientians. So Tarquinius, seeing that there was no more hope of aid from King Porsenna, left Clusium and went to Tusculum.

II.

Decessit Alexander mensem unum tres et triginta annos natu vir supra humanum modum vi animi praeditus. Omina quaedam magnitudinem eius in ipso ortu protendisse existimabantur. Quo die natus est, pater eius nuntium duarum victoriarum accepit; alterius, belli Illyrici, alterius, certaminis Olympiaci, in quod quadrigas miserat. Puer acerrimis litterarum studiis eruditus fuit. Exacta pueritia, per quinquennium Aristotele, philosopho praestantissimo, usus est magistro. Accepto tandem imperio tantam militibus suis fiduciam fecit, ut, illo praesente, nullius hostis arma timerent. Itaque cum nullo hoste unquam congressus est, quem non vicerit; nullam urbem obsedit, quam non expugnaverit. Victus denique est non virtute hostili, sed insidiis suorum et fraude.

GEOMETRY.

MATHEMATICS, PART I.

TUESDAY, SEPTEMBER 18TH :—MORNING, 9 TO 12.

1. Triangles upon the same base and between the same parallels, are equal to one another.

(*a*) If P be a point in a side AB of a parallelogram $ABCD$, and PC, PD be joined, the triangles PAD, PBC are together equal to the triangle PDC.

2. Bisect a given triangle by a straight line drawn from a given point in one of the sides.

3. If a straight line be divided into any two parts, the square on the whole line is equal to the squares on the two parts together with twice he rectangle contained by the parts.

(*a*) In a triangle, whose vertical angle is a right angle, a straight line is drawn from the vertex perpendicular to the base. Shew that the rectangle contained by the segments of the base is equal to the square on the perpendicular.

4. To divide a given straight line into two parts, so that the rectangle contained by the whole and one of the parts shall be equal to the square on the other part.

5. To describe a square that shall be equal to a given rectilinear figure.

6. To draw a straight line from a given point, either without or on the circumference, which shall touch a given circle.

(*a*) If a quadrilateral $ABCD$ be described about a circle, shew that the sum of AB and CD is equal to the sum of AD and BC.

7. If a straight line touch a circle, and from the point of contact a straight line be drawn cutting the circle, the angles made by this line with the line touching the circle are equal to the angles in the alternate segments of the circle.

8. If from any point without a circle two straight lines be drawn, one of which cuts the circle, and the other touches it, the rectangle contained by the whole line which cuts the circle and the part of it without the circle will be equal to the square on the line which touches it.

MATHEMATICS, PART I.

ALGEBRA AND ARITHMETIC.

TUESDAY, SEPT. 18TH :—AFTERNOON, 2 TO 5.

1. Resolve into factors :—

(*a*) $a^2 - 7a + 12$

(*b*) $a^2 - a - 156$

(*c*) $4x^2 + 11x - 3$

(*d*) $x^4 + x^2 y^2 + y^4$

(*e*) $x^2 - 2x + 1 - a^2 - 4ab - 4b^2$

2. Simplify :—

$$\left(\frac{a^2 - ax + x^2}{a - x} - \frac{a^2 + ax + x^2}{a + x}\right)\left(\frac{a^2 - x^2}{x^2}\right)$$

Find the value of

$$\frac{y + z}{(x - y)(x - z)} + \frac{z + x}{(y - z)(y - x} + \frac{x + y}{(z - x)(z -}$$

3. Solve the following equations :

(1) $\dfrac{x}{x + 2} + \dfrac{4}{x + 6} = 1.$

(2) $\dfrac{1}{2}x - \dfrac{1}{5}y = 4\,;\ \dfrac{1}{7}x + \dfrac{1}{15}y = 3.$

(3) $\dfrac{4}{x - 1} - \dfrac{5}{x + 2} = \dfrac{3}{x}.$

(4) $x^2 + y^2 = 180\,;\ x - y = 6.$

(5) $\sqrt{x + 3} + \sqrt{x} = 5.$

4. Two persons, 27 miles apart, setting out at the same time, are together in 9 hours if they walk in the same direction, but in 3 hours if they walk in opposite directions; find their rates of walking.

5. Two rectangles contain the same area, 480 square yards. The difference of their lengths is 10 yards, and of their breadths 4 yards; find their sides.

6. Find the square root of $12a^x + 4 - 6a^{3x} + a^{4x} + 5a^{2x}$

Find the value of $2\sqrt{363} - 5\sqrt{243} + \sqrt{192}$

Rationalize the denominator of $\frac{3\sqrt{2} - 1}{3\sqrt{2} + 1}$

7. Simplify $\frac{2\frac{4}{5} - 1\frac{1}{2} + 9\frac{1}{11}}{4\frac{1}{5} - 2\frac{1}{4} + 13\frac{7}{11}}$

8. What principal will give $616, simple interest in $5\frac{1}{2}$ years at $6\frac{2}{3}$ per cent.?

9. A cubic foot of water weighs 1000 oz., find the weight of a rectangular block of gold 20.32 cm. in length, 5.08 cm. in thickness and 7.62 cm. in breadth, the weight of a mass of gold being 19.26 times the weight of an equal bulk of water.

MATHEMATICS, PART II.

GEOMETRY.

FRIDAY, SEPTEMBER 21ST :—MORNING, 9 TO 12.30.

1. Describe a circle about a given triangle.

If the inscribed and circumscribed circles of a triangle have the same centre, show that the triangle is equilateral, and that the diameter of the circumscribed circle is double that of the inscribed circle.

2. Inscribe a regular quindecagon in a given circle.

3. If one side of a triangle be produced, and the exterior angle so formed be bisected by a straight line which cuts the base produced, the segments between the bisector and the extremities of the base shall have the same ratio as the remaining sides of the triangle have.

Show how a given straight line may be divided both internally and externally in a given ratio.

4. Similar triangles are to one another in the duplicate ratio of their homologous sides.

If the lengths of two of the homologous sides are 8 and 4, what is the ratio of the triangles?

ALGEBRA.

5. Find a mean proportional to $(a+b)^2$ and $(a-b)^2$.

6. Find the sum of any number of terms of a Geometrical Progression, and deduce the sum of an infinite Geometrical Series.

If the sum of a Geometrical Progression to infinity is n times the first term, show that the common ratio is $1-\frac{1}{n}$.

7. When are three quantities in Harmonical Progression?

If a line AB be divided internally at C and externally at D, so that $AC : CB :: AD : DB$, show that AC, AB and AD are in Harmonical Progression.

8. How many numbers can be formed from the digits 1, 2, 3, 4, 5? How many from 1, 2, 3, 4, 0?

9. Expand $(2+x)^4$ by the Binomial Theorem, and find three terms of the expansion of $(2+x)^{-3}$.

TRIGOOMETRY.

10. Give the signs of the following:—(1) sin 100°, (2) cos 200°, (3) tan 300°, (4) cot 400°, (5) sec 500°, (6) cosec 600°.

11. Express the ratios of $180° - A$ and those of $180° + A$ in terms of those of A.

12. Prove the following:—

(1) $\tan^2 A - \sin^2 A = \sin^4 A \sec^2 A$,

(2) $\cos(A+B) = \cos A \cos B - \sin A \sin B$,

(3) $\sin 80° - \sin 20° = \sin 40°$.

13. Show that:—

(1) $\sin 2A = \dfrac{2\tan A}{1+\tan^2 A}$,

(2) $\cos 2A = \dfrac{1-\tan^2 A}{1+\tan^2 A}$,

(3) $\tan 2A = \dfrac{2\tan A}{1-\tan^2 A}$.

ENGLISH GRAMMAR.

WEDNESDAY, SEPT. 19TH :—9 TO 12 A.M.

(Candidates will answer the five questions of the ordinary matriculation paper and also the following four :)

6. Explain historically the words and parts of words printed in italics : Ox*en*, m*en*, com*e* (past participle), *come* (infinitive), lov*eth*, g*ee*se, frozen, n*i*ght, *one*, *they*, m*i*ne, rath*er*, *the* more, th*o*se, tapst*er*, *hotel*, w*e*re. Explain the pronunciation of *one*.

7. Apply Grimm's Law to *bear* (verb), *two*, *garden*, mentioning as you do so the general principles of change. Show the peculiarity of Old High German with regard to Grimm's Law.

8. Exemplify differences between Anglo-Saxon and modern English as regards inflections of nouns and verbs.

9. Write on foreign elements in the English vocabulary.

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ENGLISH LITERATURE.

MILTON—*Shorter Poems.*

WEDNESDAY, SEPT. 19TH :—2 TO 6.

(To be taken along with Section I. or Section II. of Matriculation Paper. Write the answers on each author in separate books.)

1. Give in a page an account of Milton's life.

2. Show that *L'Allegro* and *Il Penseroso* are complementary poems.

3. State what led to the writing of *Lycidas*. Is *Lycidas* entirely pastoral? Write a short paragraph on what you consider its leading features.

4. Refer to its poem and its context each of the following extracts :

(*a*) Hide me from day's garish eye.

(*b*) Peace hath her victories
No less renowned than war.

(*c*) When thou taught'st Cambridge and King Edward Greek.

(*e*) New *Presbyter* is but old *Priest* writ large.

(*f*) Alas! What boots it with incessant care
To tend the homely, slighted, shepherd's trade,
And strictly meditate the thankless Muse?

(*g*) They also serve who only stand and wait.

(*h*) All is, if I have grace to use it so,
As ever in my great Task-Master's eye.

(*i*) To scorn delights and live laborious days.

(*j*) Haste thee, Nymph, and bring with thee
Jest, and youthful Jollity.

(*k*) Return, Alpheus; the dread voice is past.

(*l*) Licence they mean when they cry Liberty.

(*m*) In vain doth Valour bleed
While Avarice and Rapine share the land.

(*n*) Built in the eclipse, and rigged with curses dark.

(*o*) Such sweet compulsion doth in music lie,
To lull the daughters of Necessity.

———

MORLEY—*First Sketch*, Chapters VII and VIII.

TUESDAY, SEPT. 25TH :—9 TO 11 A.M.

1. Give some account of the conditions of the Elizabethan stage.

2. Mention six of Shakespere's earliest and six of his latest plays. Sketch the plot of "The Merchant of Venice."

3. Explain the main purpose of "The Faerie Queene," and show its relation to the religious controversies of the time.

4. Describe in a few words the character of the following works, giving in each case the name of the author:—"Euphues," "Tamburlaine," "A Groat's Worth of Wit Bought with a Million of Repentance," "Prosopopoia," "Sejanus," "Novum Organum," "Astrophel and Stella."

5. Make a list of Milton's prose works, and briefly explain their purport.

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MACAULAY'S ESSAYS.

FRIDAY, SEPTEMBER 21st:—AFTERNOON, 2 TO 4.30.

NOTE.—Candidates will answer the first four questions, question five and six *or* seven and eight, and question nine.

1. In what ways did the Roman Catholic Church show its vitality during the age which immediately followed Luther?

2. "The Church of Rome thoroughly understands, what no other church has ever understood, how to deal with enthusiasm." Follow Macaulay in his development of this subject.

3. "He, Frederic the Great, was not content with being his own minister—he would be his own sole minister." Illustrate fully the character of Frederic's government.

4. Examine the military fortunes of Frederic during the successive campaigns of the Seven Years War.

5. What does Macaulay say of Dumont and Bentham?

6. What was the state of France when Mirabeau rose to prominence.

7. What was the political condition of India at the moment when Clive entered the service of the East India Company?

8. Outline the relations of Clive and Meer Jaffier.

9. Make notes on any five of the following subjects: Philip IV of France; the part of Spain in the history of the Reformation; the Pragmatic Sanction; Clement XIII; the name, "Constituent Assembly"; the siege of Arcot.

ENGLISH COMPOSITION.

FRIDAY, SEPTEMBER 21st:—AFTERNOON, 4.30 TO 6.

1. Explain and illustrate:—Impropriety in the use of words, Barbarism, Affectation of foreign phrases.

2. In how many ways may *purpose* be expressed in English? Give an example of each kind, preserving identity of meaning throughout.

3. Distinguish carefully between *only* and *alone*.

4. Explain carefully the ambiguity in the following sentence:—They aimed at nothing less than the crown.

5. Write an essay on any *one* of the following subjects:—

A. A Summer Outing.

B. Books of Adventure.

C. Sincerity.

FRENCH.

LE 20 SEPTEMBRE 1900 :—DE 9 HEURES A MIDI.

N.B.—(Il faut répondre en français aux questions exprimées en français.)

1. (*a*) Quels travers (ridicules) M. Pailleron attaque-t-il dans *Le Monde où l'on s'ennuie?* (*b*) Décrire le rôle de Paul et (*c*) faire un tableau des coteries littéraires dont il est parlé dans cette comédie.

2. Translate the following expressions taken from the above comedy.

(1) Je tiens à l'avoir.

(2) Un peu hurluberlu et forte en propos.

(3) Il y a beau jour que je le connais.

(4) Je m'y connais en musique.

(5) Tu auras beau faire.

(6) Tout à l'heure.

(7) A force de le lui dire.

(8) Bien entendu.

(9) Qu'est-ce qui te prend?

(10) C'est un four (figuratively).

(11) Vous avez eu la main heureuse.

(12) Un travail de longue haleine.

(13) Il s'agit de

(14) A la bonne heure.

(15) A mesure que

(16) Sainte-Nitouche.

(17) De ton cru.

(18) Cela m'est bien égal.

(19) Je me tenais à quatre.

(20) Ils jouaient à cache-cache.

3. Esquisser la vie de Pierre Loti *ou* faire en une centaine de mots une description et une appréciation de ses œuvres.

4. Translate into English :

.... Il avait pris le large, emporté très vite sur des mers inconnues, beaucoup plus bleues que celles de l'Islande.

Le navire qui le conduisait en extrême Asie avait ordre de se hâter, de brûler les relâches.

Déjà il avait conscience d'être bien loin, à cause de cette vitesse qui était incessante, égale, qui allait toujours, presque sans souci du vent ni de la mer. Etant gabier, il vivait dans sa mâture, perché comme un oiseau, évitant ses soldats entassés sur le pont, cette cohue-d'en bas.

On s'était arrêté deux fois sur la côte de Tunis, pour prendre encore des zouaves et des mulets ; de très loin il avait aperçu des villes blanches sur des sables ou des montagnes. Il était même descendu de sa hune pour regarder curieusement des hommes très bruns, drapés de voiles blancs, qui étaient venus dans des barques pour vendre des fruits : les autres lui avaient dit que c'était ça, les Bédouins.

Cette chaleur et ce soleil, qui persistaient toujours, malgré la saison d'automne, lui donnaient l'impression d'un dépaysement extrême.

PIERRE LOTI.

5. Reproduire en une cinquantaine de mots un incident quelconque qui se trouve raconté dans *Le Roi des Montagnes*.

6. Translate into English :—

Un second messager arrivait à toutes jambes pour donner l'alarme. Hadgi-Stavros lui cria du plus loin qu'il le vit : "Est-ce la compagnie de Périclès ? "

Le brigand répondit : "Je n'en sais rien ; je ne sais pas lire les numéros." Un coup de feu retentit dans le lointain. "Chut ! " fit le roi en tirant sa montre. L'assemblée observa un silence religieux. Quatre coups de fusils se succédèrent de minute en minute. Le dernier fut suivi d'une détonation [illegible] qui ressemblait à un feu de peloton. Hadgi Stavros remit en souriant sa montre dans sa poche.

" C'est bien, dit-il ; rentrez les bagages au dépôt, et servez-nous du vin d'Egine ; c'est la compagnie de Périclès ! "

Il m'aperçut dans mon coin, juste au moment où il achevait sa phrase. Il m'appela d'un ton goguenard :

" Venez, monsieur l'Allemand, vous n'êtes pas de trop. Il est bon de se lever matin : on voit des choses curieuses. Votre soif est-elle éveillée ? Vous boirez un verre de vin d'Egine avec nos braves gendarmes."

Cinq minutes plus tard on apporta trois outres énormes, tirées de quelque magasin secret. Une sentinelle attardée vint parler au roi.

7. Traduire en français :—

(*a*) Do you remember the terrible Hull fire, when thousands of people lost their homes and a few people their lives? It will take its place, the newspapers said at the time, among the great fires of North America. How generously the Canadians and the English and the Americans responded to the appeal of the Mayor of Ottawa! Hundreds of thousands of dollars were collected for those who were in need, who had no means to rebuild their dwellings. Contributions were received from the most unexpected places.

(*b*) I have never seen two more obstinate men. They have been disputing for the last three quarters of an hour. Neither has said anything convincing, and each one tries to speak louder than the other. They are equally ignorant of the subject they are talking about.

FRENCH.

SEPTEMBRE 1900—TROIS HEURES.

COMPOSITION AVANCÉE ET TEXTES SUPPLÉMENTAIRES.

1. Traduire en anglais.

(*a*) *Les Précieuses Ridicules.*

Madelon.—Ne m'en parlez point: c'est un admirable lieu que Paris; il s'y passe cent choses tous les jours qu'on ignore dans les provinces, quelque spirituelle qu'on puisse être.

Cathos.—C'est assez: puisque nous sommes instruites, nous ferons notre devoir de nous écrier comme il faut sur tout ce qu'on dira.

Mascarille.—Je ne sais pas si je me trompe; mais vous avez toute la mine d'avoir fait quelque comédie.

Madelon.—Hé! il pourrait être quelque chose de ce que vous dites.

Mascarille.—Hé! ma foi! Il faudra que nous la voyions. Entre nous, j'en ai composé une que je veux faire représenter.

Cathos.—Hé ! à quels comédiens la donnerez-vous ?

Mascarille.—Belle demande! Aux grands comédiens, il n'y a qu'eux qui soient capables de faire valoir les choses ; les autres sont des ignorants qui récitent comme l'on parle ; ils ne savent pas faire onfler les vers, et s'arrêter au bel endroit ; et le moyen de connaître où est le beau vers, si le comédien ne s'y arrête, et ne vous avertit par là qu'il faut faire le brouhaha.

Cathos.—En effet, il y a manière de faire sentir aux auditeurs les beautés d'un ouvrage ; et les choses ne valent que ce qu'on les fait valoir.

Mascarille.—Que vous semble de ma petite oie ? La trouvez-vous congruante à l'habit ?

Cathos.—Tout-à-fait.

Mascarille.—Que dites-vous de mes canons ?

Madelon.—Ils ont tout à fait bon air.

2. Traduire en français:

(*a*) There are things that people have often repeated, because they have heard them said once. Many persons have imagined (*s'imaginer*), and have taken pleasure in (*se plaire à*) repeating, that Hannibal had committed a grievous mistake in (*de*) not going to besiege Rome after the battle of Cannæ (Cannes). At first the Romans were errified and bewildered, it is true; but we must remember that the onsternation of a warlike people has always changed to (*se transformer en*) courage. A proof that Hannibal would not have succeeded if he had attempted to besiege Rome is that the Romans, in spite of the great losses which they had experienced, had found themselves still capable of sending help to the places which the enemy had threatened. Hannibal is also reproached with (*de*) having led his army to Capua (Capoue), but we must again remember that his soldiers, become rich after so many victories, would have grown effeminate (*s'amollir*) anywhere. They would have found everywhere the opportunity of gratifying their desire for luxury and pleasure with the spoils which they had amassed.

(*b*) It is inconceivable that there should exist another town in the world with streets to rival these. Perhaps in the heart of China, or in some African village, there are more wonderful and interesting instances of the result of municipal negligence, but certainly not in Europe or America.

(*c*) If I had even guessed that you were offended, I should not have laughed at your serious face. I know how unpleasant it is to see another person with an air of superiority make light of (*faire peu de cas de*) one's offended feelings. "Put yourself in his place" is the best advice I ever received from my old father. It is all very well to say that the person who pays attention to trifles deserves no consideration. What does the Golden Rule say? Do unto others as you would that other men should do to you?

3. State (in English) in a few words (*a*) the subject of *Les Misérables*, (*b*) Victor Hugo's relation to the Third Empire, who were the butts of Molière's wit in *Les Précieuses?*

GERMAN.

THURSDAY, SEPTEMBER 20TH:—AFTERNOON, 2 TO 5.

1. Translate:—

(*a*) Je tiefer wir hinabſtiegen, deſto lieblicher rauſchte das unterirdiſche Gewäſſer; nur hier und da, unter Geſtein und Geſtrüppe, blinkte es hervor und ſchien heimlich zu lauſchen, ob es ans Licht treten dürfe, und endlich kam eine kleine Welle entſchloſſen hervorgeſprungen. Nun zeigt ſich die gewöhnliche Erſcheinung: ein Kühner macht den Anfang, und der große Troß der Zagenden wird plötzlich, zu ſeinem eigenen Erſtaunen, von Mut ergriffen, und eilt, ſich mit jenem erſten zu vereinigen. Eine Menge anderer Quellen hüpften jetzt haſtig aus ihrem Verſteck, verbanden ſich mit der zuerſt hervorgeſprungenen und bald bildeten ſie zuſammen ein ſchon bedeutendes Bächlein, das in unzähligen Waſſerfällen und in wunderlichen Windungen das Bergthal hinabrauſcht. Das iſt nun die Ilſe, die liebliche ſüße Ilſe.

(*b*) Es hat sich erwiesen, dass der Rittmeister in der That seines Ranges verlustig war; ich muss aber doch dabei bleiben, ihn so zu nennen. Er ist nach dem Ritt mit dem Vater nicht mehr auf unsern Hof gekommen; es scheint, er hat die Geschichte mit dem Ronymus als gute Gelegenheit genommen, um mit dem Vater Streit anzufangen; es war ja nichts mehr von uns zu holen. Wie und warum nachher der grosse Rechtsstreit daraus entstanden, das weiss ich nicht und bin nie darüber klar geworden.

(*c*) Ich habe lang da still gekniet und gesessen, ich hatte kein Gebetbuch bei mir, ich brauchte es nicht.

Ich kam aus der Kirche, ich war so aus der Welt draussen, dass

es mir wunderlich vorkam, wie da die Weiber auf dem Wochenmarkt sitzen und feilbieten, was eben zu verkaufen ist.

Ein schwerer Wagen mit Kornsäcken kam vom Kaufhaus herüber. Wer ist der Mann, der neben dem Fuhrwerk hergeht? Ja, er ist's, es ist mein Schwager, der Mann meiner vorstorbenen Schwester. Ich rief ihn, er stand still und sah sich um, ich winkte ihm und sprang über Körbe weg, und jetzt stand ich bei ihm, und er gab mir die Hand.

(*d*) Die ungeduldige Frau Eckart hatte von ihrem Mann den gemessenen Befehl erhalten, den Sohn ruhig gewähren zu lassen, und sie that es, so schwer es ihr auch ankam. Dafür ließ sie es in der Gesellschaft der Kanzleirätin nicht an zarten Anspielungen fehlen. So führte sie an einem Sonntag Nachmittag ihre Freundin durch die oberen, unbenützten Räume des Hauses und erklärte, hier werde ihr Sohn mit seiner jungen Frau wohnen, und ein anderes Mal, als die Kanzleirätin fragte, ob der Herr Doktor in den Sommerferien bestimmt nach Italien reisen werde, antwortete Frau Eckart mit bedeutsamem Lächeln, er werde wohl die Reise noch ein Jahr verschieben, um sie dann in Gesellschaft zu machen.

2. Give the remaining two principal parts of the following :—*bot, zog, sog, bog, log, trog, flog, blies, liess, hiess.*

3. Translate :—*Er stand mir bei; er stand bei mir; er liess mich rufen; er liess mir rufen; die Stadt war zerstört; die Stadt wurde zerstört.* Comment on the last two sentences.

4. Form derivatives from *binden, sprechen, ziehen, kennen, können, graben.*

5. Distinguish three equivalents for *when* in German and translate :—"I do not know when he will come, but when I saw him he said he would come when he could."

6. How does the German language distinguish between the subjective and the objective genitive? Illustrate by examples.

7. How do you express *since* in German :—(*a*) as a preposition; as a conjunction (*b*) of time; (*c*) of cause? Form sentences to illustrate your answer.

8. Explain the treatment of the prefix in verbs compounded with *durch, hinter, über, unter, um.*

9. Give the various meanings of *mögen.* Illustrate by well-constructed sentences.

10. State the different moods by which commands may be expressed. Compose a short sentence exemplifying each.

11. Translate (*at sight*) :—

There were once two brothers, one rich and the other poor. One day the poor man went into the forest for twigs, and saw a bird of gold, which was more beautiful than any bird he had ever seen before. He picked up a stone and threw it at the bird, and hit it, but with so little force that only a single feather dropped off. This feather he took to his brother, who looked at it and said ; " It is of pure gold! I will give you a good sum of money for it."

The next day he climbed up a high tree to cut off a bough or two, when the same bird flew out of the branches, and, as he looked about him, he found a nest with an egg in it, and the egg was of gold. This he took to his brother, who gave him what it was worth, but said he must have the bird itself.

For the third time the brother went into the forest and again saw the golden bird sitting on a tree, whereupon he threw a stone and killed it, and received a large pile of gold for it. With this the man went home light of heart.

12. Translate (*at sight*) :—

Wenn eine große Leidenſchaft die Frauen bewegt, ſei es Haß, ſei es Rache, ſei es die edelſte Vaterlandsliebe, dann vergeſſen ſie ihr Geſchlecht, nehmen die Waffen und ſtürzen ſich in die Gefahr. Doch merken Sie wohl, nur wenn ſie im Zuſtande höherer Aufregung ſind. Der Mann aber hat den Mut, mit kaltem Blute der Gefahr ins Auge zu ſehen — das iſt der Unterſchied. Es fällt mir nicht ein, dem Manne deswegen einen Vorrang einzuräumen. Die Frauen haben einen andern Mut, der wiederum dem Manne fehlt, den, zu leiden. Ich wollte Ihnen nur beweiſen, daß ein Unterſchied zwiſchen Mann und Weib iſt, daß die Natur jedes Geſchlecht mit verſchiedenen Eigenſchaften begabt hat. Dieſe verſchiedenen Eigenſchaften weiſen jedem Geſchlechte einen verſchiedenen Wirkungskreis an, dieſer verſchiedene Wirkungskreis bedingt eine verſchiedene Stellung der Geſchlechter zu einander.

GERMAN.

EXTRA TEXTS AND ADVANCED COMPOSITION.

SEPT., 1900. THREE HOURS.

1. Translate into English :—

(*a*) (*The prose is at sight.*)

Hermann und Dorothea gehen am Abende, da eben die Sonne sich zum Untergange neigt, nach Hause. Wie gross malt er uns dieses Schauspiel!

„Also gingen die zwei entgegen der sinkenden Sonne,
Die in Wolken sich tief, gewitterdrohend, verhüllte,
Aus dem Schleier, bald hier, bald dort, mit glühenden Blicken
Strahlend über das Feld die ahnungsvolle Beleuchtung."

Es wird Nacht:

„Herrlich glänzte der Mond, der volle, vom Himmel herunter;
Nacht war's, völlig bedeckt das letzte Schimmern der Sonne;
Und so lagen vor ihnen in Massen gegen einander
Lichter, hell wie der Tag, und Schatten dunkeler Nächte.

Ein reifes Kornfeld wogt, von der Luft bewegt, hin und wieder. Er nennt es eine goldene Kraft, die sich im ganzen Felde bewegt. Aber selbst bei diesen Schilderungen sieht man schon, dass er auch sinnliche Gegenstände nicht bloss den Sinnen malt, dass er alles charakteristisch, alles in Beziehung auf die ganze Wirkung zeichnet, die es auf uns ausübt.... Daher besitzt er eine so eigentümliche Kunst, viel durch einzelne Beiwörter auszurichten, am meisten durch die, welche, auf den ersten Anblick und aus dem Zusammenhange herausgerissen, äusserst einfach scheinen; wie der wohlgebildete Sohn, der menschliche Hauswirt, die zuverlässige Gattin. Wo er Empfindungen malt oder Wahrheiten ausführt, da vermeidet er jedes Wort, das übertrieben oder künstlich scheinen, oder mit dem nur überhaupt das einfachste und schlichteste Gefühl nicht sym-

pathisiren könnte; Man lese die Rede des Geistlichen über das Bild des Todes:

„Lächelnd sagte der Pfarrer: Des Todes rührendes Bild steht
Nicht als Schrecken dem Weisen und nicht als Ende dem Frommen.
Jenen drängt es ins Leben zurück und lehret ihn handeln,
Diesem stärkt es zu künftigem Heil in Trübsal die Hoffnung;
Beiden wird zum Leben der Tod. Der Vater mit Unrecht
Hat dem empfindlichen Knaben den Tod im Tode gewiesen.
Zeige man doch dem Jüngling des edel reifenden Alters
Wert, und dem Alter die Jugend, dass beide des ewigen Kreises
Sich erfreuen, und so sich Leben im Leben vollende!"

und fühle selbst welch ein Leben aus diesen Versen hervorquillt.

(*b*) Die Frau Kanzleirätin Engelmann war, das sagte die ganze Stadt, eine sehr gebildete Dame. Als beim letzten Vogelschießen eine französische Seiltänzertruppe in Hackelburg Vorstellungen gab, hatte ein Dutzend glaubwürdiger Personen mit eigenen Ohren gehört, wie sie an der Kasse „quatre billets" verlangt hatte, auch hatte sie auf die Groschenbibliothek der deutschen Klassiker subskribiert und lächelte überlegen, wenn man Macbeth, Shylock und Leicester statt Mecbeth, Scheilock und Lester sagte. Unter solchen Umständen ist es selbstverständlich, daß bei der Ausbildung ihrer Tochter nichts gespart worden war. Marie besaß jene anspruchslose Bildung, welche ein Mädchen ebenso weit über die genfer Pensionspflanze als über das kartoffelschälende Ideal eines Philisters erhebt.

(*c*) (*At sight.*)

Die Wunde brennt; die bleichen Lippen beben. —
Ich fühl's an meines Herzens mattem Schlage,
Hier steh' ich an den Marken meiner Tage.—
Gott, wie du willst! Dir hab' ich mich ergeben.

Viel gold'ne Bilder sah ich um mich schweben;
Das schöne Traumbild wird zur Totenklage.—
Mut! Mut! — Was ich so treu im Herzen trage,
Das muß ja doch dort ewig mit mir leben! —

Und was ich hier als Heiligtum erkannte,
Wofür ich rasch und jugendlich entbrannte,
Ob ich's nun Freiheit, ob ich's Liebe nannte:

Als lichten Seraph seh' ich's vor mir stehen; —
Und wie die Sinne langsam mir vergehen,
Trägt mich ein Hauch zu morgenroten Höhen.

2. Translate into German (*at sight*) :—

(*a*) We could neither advance nor stand still, and at every moment we had to grasp some little tree in order to be able to keep on our feet at all. You know that I am not timid, but I can assure you that it was no joke. While you are quietly reading my description you may perhaps smile. You will say: It served you right; you should have stayed at the inn. Well, I confess that that idea passed a couple of times through my own head, but it did not do any good. In a short time, of course, we were soaked through and through.

(*b*) Freytag was born in Silesia. He studied at the University of Breslau and subsequently under Lachmann at the University of Berlin. He spent the following seven years at the University of Breslau as *Privatdocent*. He had prepared himself for this position by extensive Germanistic studies. However the authorities forbade him to lecture on German History. In consequence he gave up his position and went to Leipsick, where he undertook the editorship of a newspaper called "Die Grenzboten." He left Leipsick in the year 1870. During the three previous years he had been a representative of the city of Erfurt in the North German *Reichstag*. He took part in the Franco-German war, and remained with the staff of the Crown Prince until the battle of Sedan. From that time until his death, which occurred last spring, he lived in a very quiet way. He spent his time on his estate and in Wiesbaden.

FACULTY OF ARTS.

SECOND YEAR EXHIBITIONS.

FACULTY OF ARTS.

SECOND YEAR EXHIBITIONS.

SECOND YEAR EXHIBITIONS.

GREEK AUTHORS.

WEDNESDAY, SEPT. 19TH :—AFTERNOON, 2 TO 4.

DEMOSTHENES, OLYNTH. I. AND II.

1. Translate :—(*a*) εἰ μὲν γὰρ ὑφ' ὑμῶν πεισθέντες ἀνείλοντο τὸν πόλεμον, σφαλεροὶ σύμμαχοι καὶ μέχρι του ταῦτ' ἂν ἐγνωκότες ἦσαν ἴσως· ἐπειδὴ δ' ἐκ τῶν πρὸς αὐτοὺς ἐγκλημάτων μισοῦσι, βεβαίαν εἰκὸς τὴν ἔχθραν αὐτοὺς ὑπὲρ ὧν φοβοῦνται καὶ πεπόνθασιν ἔχειν.

(*b*) ἀλλὰ μὴν εἰ τοῦτο γενήσεται, δέδοικ' ὦ ἄνδρες Ἀθηναῖοι μὴ τὸν αὐτὸν τρόπον, ὥσπερ οἱ δανειζόμενοι ῥᾳδίως ἐπὶ τοῖς μεγάλοις [τόκοις], μικρὸν εὐπορήσαντες χρόνον ὕστερον καὶ τῶν ἀρχαίων ἀπέστησαν, οὕτως καὶ ἡμεῖς ἐπὶ πολλῷ φανῶμεν ἐρραθυμηκότες, καὶ ἅπαντα πρὸς ἡδονὴν ζητοῦντες, πολλὰ καὶ χαλεπὰ ὧν οὐκ ἠβουλόμεθ' ὕστερον εἰς ἀνάγκην ἔλθωμεν ποιεῖν, καὶ κινδυνεύσωμεν περὶ τῶν ἐν αὐτῇ τῇ χώρᾳ.

2. Write Syntactical notes upon : –

(i) τῶν ἀτοπωτάτων μέντἂν εἴη, εἰ ἃ νῦν ἄνοιαν ὀφλισκάνων ὅμως ἐκλαλεῖ, ταῦτα δυνηθεὶς μὴ πράξει.

(ii) δεῖ τοίνυν ὦ ἄνδρες Ἀθηναῖοι τοῦτ' ἤδη σκοπεῖν αὐτούς, ὅπως μὴ χείρους περὶ ἡμᾶς αὐτοὺς εἶναι δόξομεν τῶν ὑπαρχόντων, ὡς ἔστι τῶν αἰσχρῶν, μᾶλλον δὲ τῶν αἰσχίστων, μὴ μόνον πόλεων καὶ τόπων, ὧν ἡμέν ποτε κύριοι, φαίνεσθαι προϊεμένους, ἀλλὰ καὶ τῶν ὑπὸ τῆς τύχης παρασκευασθέντων συμμάχων καὶ καιρῶν.

3. Explain the references in:—(*a*) "*τί οὖν*" *ἄν τις εἴποι* "*συ γράφεις; ταῦτ' εἶναι στρατιωτικά;*" *μὰ Δί' οὐκ ἔγωγε.*

(*β*) *πρότερον μὲν γὰρ ὦ ἄνδρες Ἀθηναῖοι κατὰ συμμορίας εἰσεφέρετε νυνὶ δὲ πολιτεύεσθε* [*κατὰ συμμορίας*].

EURIPIDES, MEDEA.

1. Translate:—

(*a*) *ἐχθροὶ γὰρ ἐξιᾶσι πάντα δὴ κάλων,*
κοὐκ ἔστιν ἄτης εὐπρόσοιστος ἔκβασις.

(*b*) *μὴ δῆτα, θυμέ. μὴ σύ γ' ἐργάσῃ τάδε·*
ἔασον αὐτούς ὦ τάλαν, φείσαι τέκνων,
ἐκεῖ μεθ' ἡμῶν ζῶντες εὐφρανοῦσί με.
μὰ τοὺς παρ' Ἅιδῃ νερτέρους ἀλάστορας,
οὔτοι ποτ' ἔσται τοῦθ' ὅπως ἐχθροῖς ἐγὼ
παῖδας παρήσω τοὺς ἐμοὺς καθυβρίσαι —
πάντως πέπρακται ταῦτα κοὐκ ἐκφεύξεται.

(*c*) *χροιὰν γὰρ ἀλλάξασα λεχρία πάλιν*
χωρεῖ τρέμουσα κῶλα καὶ μόλις φθάνει
θρόνοισιν ἐμπεσοῦσα μὴ χαμαὶ πεσεῖν.

2. Write Syntactical notes on:—

(i) *καὶ γὰρ ἠδικημένοι*
σιγησόμεσθα, κρεισσόνων νικωμενοι.

(ii) *οὐ μὴ δυσμενὴς ἔσει φίλοις*
παύσει δὲ θυμοῦ καὶ πάλιν στρέψεις κάρα
φίλους νομίζουσ' οὕσπερ ἂν πόσις σέθεν.

(iii) *παῖδας δὲ μεῖναι τοὺς ἐμοὺς αἰτήσομαι*
οὐχ ὡς λιποῦσ' ἂν πολεμίας ἐπὶ χθονός
ἀλλ' ὡς δόλοισι παῖδα βασιλέως κτάνω.

(iv) οὐδὲ παύσεται
χόλου, σάφ' οἶδα, πρὶν κατασκῆψαί τινα.

3. Discuss with reference to the date of the production of the Medea :—

βέβακε δ' ὅρκων χάρις, οὐδ' ἔτ' αἰδως
Ἑλλάδι τᾷ μεγάλᾳ μένει, αἰθερία δ' ἀνέπτα.

LUCIAN, VERA HISTORIA I. AND II.

1. Translate with notes :—κἂν ἓν γὰρ δὴ τοῦτο ἀληθεύσω λέγων, ὅτι ψεύσομαι. οὕτω δ' ἄν μοι δοκῶ καὶ τὴν παρὰ τῶν ἄλλων κατηγορίαν ἐκφυγεῖν αὐτὸς ὁμολογῶν μηδὲν ἀληθὲς λέγειν. γράφω τοίνυν περὶ ὧν μήτε εἶδον μήτε ἔπαθον μήτε παρ' ἄλλων ἐπυθόμην, ἔτι δὲ μήτε ὅλως ὄντων μήτε τὴν ἀρχὴν γενέσθαι δυναμένων. διὸ δεῖ τοὺς ἐντυγχάνοντας μηδαμῶς πιστεύειν αὐτοῖς.

Discuss Lucian's use of negatives.

2. Translate :—ἤρξατο δὲ ἐξ αἰτίας τοιαύτης· τῶν ἐν τῇ ἀρχῇ τῇ ἐμῇ ποτε τοὺς ἀπορωτάτους συναγαγὼν ἐβουλήθην ἀποικίαν ἐς τὸν Ἑωσφόρον στεῖλαι, ὄντα ἔρημον καὶ ὑπὸ μηδενὸς κατοικουμένην· ὁ τοίνυν Φαέθων φθονήσας ἐκώλυε τὴν ἀποικίαν κατὰ μέσον τὸν πόρον ἀπαντήσας ἐπὶ τῶν Ἱππομυρμήκων· τότε μὲν οὖν νικηθέντες — οὐ γὰρ ἦμεν ἀντίπαλοι τῇ παρασκευῇ — ἀνεχωρήσαμεν.

3. Translate — ὁ δὲ οὐ πρότερον ἔφη ἐρεῖν οὐδὲ πεύσεσθαι παρ' ἡμῶν πρὶν ξενίων τῶν παρόντων μεταδοῦναι, καὶ λαβὼν ἡμᾶς ἦγεν ἐπὶ τὴν οἰκίαν — ἐπεποίητο δὲ αὐτάρκη καὶ στιβάδας ἐνῳκοδόμητο καὶ τὰ ἄλλα ἐξήρτιστο — παραθεὶς δὲ ἡμῖν λάχανά τε καὶ ἀκρόδρυα καὶ ἰχθῦς, ἔτι δὲ καὶ οἶνον ἐγχέας ἐπειδὴ ἱκανῶς ἐκορέσθημεν, ἐπυνθάνετο ἃ ἐπεπόνθειμεν.

4. Explain the allusions:—ἦν δὲ χρυσοῦς ὅλον τὸ δεξιὸν ἡμίτομον — ἦλθε μὲν καὶ οὗτος, περίεφθος καὶ τὸ σῶμα ὅλον ὠπτημένος — ἠρίστευσε δὲ ἐπὶ τῷ δεξιᾷ ταχθεὶς πολὺ μᾶλλον ἢ ὅτε ζῶν ἐπὶ Δηλίῳ ἐμάχετο. — ἐγὼ δὲ προελθὼν ὀλίγον ἀπὸ τῆς θαλάττης εὗρον τό σπήλαιον τοιοῦτον οἷον Ὅμηρος εἶπε, καὶ αὐτὴν ταλασιουργοῦσαν — ἦν δὲ ἡ μὲν πρώτη δίκη περὶ Αἴαντος τοῦ Τελαμῶνος.

DEMOSTHENES, PHIL. I.

N.B.—To be attempted by Candidates only who do not write on Demosthenes, Olynthiacs I and II.

1. Translate:—

(*a*) τίνος οὖν εἵνεκα ταῦτα λέγω; ἵν' ἴδητ' ὦ ἄνδρες Ἀθηναῖοι καὶ θεάσησθε, ὅτι οὐδὲν οὔτε φυλαττομένοις ὑμῖν ἐστιν φοβερόν, οὔτ' ἂν ὀλιγωρῆτε, τοιοῦτον οἷον ἂν ὑμεῖς βούλοισθε, παραδείγμασι χρώμενοι τῇ τότε ῥώμῃ τῶν Λακεδαιμονίων ἧς ἐκρατεῖτε ἐκ τοῦ προσέχειν τοῖς πράγμασιν τὸν νοῦν, καὶ τῇ νῦν ὕβρει τούτου, δι' ἣν ταραττόμεθα ἐκ τοῦ μηδὲν φροντίζειν ὧν ἐχρῆν.

(*b*) οὗτοι παντελῶς, οὐδ' εἰ μὴ ποιήσαιτ' ἂν ἤδη, ὡς ἔγωγέ φημι δεῖν, εὐκαταφρόνητον ἔσται· ἵν' ἢ διὰ τὸν φόβον, εἰδὼς εὐτρεπεῖς ὑμᾶς—εἴσεται γὰρ ἀκριβῶς· εἰσὶ γὰρ εἰσὶν οἱ πάντ' ἐξαγγέλλοντες ἐκείνῳ παρ' ἡμῶν αὐτῶν πλείους τοῦ δέοντος — ἡσυχίαν ἔχῃ, ἢ παριδὼν ταῦτ' ἀφύλακτος ληφθῇ, μηδενὸς ὄντος ἐμποδὼν πλεῖν ἐπὶ τὴν ἐκείνου χώραν ὑμῖν, ἂν ἐνδῷ καιρόν.

2. Write Syntactical notes on:—

(i) εἴ τοι πάνθ' ἃ προσῆκε πραττόντων οὕτως εἶχεν, οὐδ' ἂν ἐλπὶς ἦν αὐτὰ βελτίω γενέσθαι.

(ii) ἡμῶν δ' οἱ μὲν περιόντες μετὰ Λακεδαιμονίων φασὶ

Φίλιππον πράττειν τὴν Θηβαίων κατάλυσιν καὶ τὰς πολιτείας διασπᾶν, οἱ δ' ὡς πρέσβεις πέπομφεν ὡς βασιλέα, οἱ δ' ἐν Ἰλλυριοῖς πόλεις τειχίζειν.

(iii) Οἶμαι τοίνυν ἐγὼ ταῦτα λέγειν ἔχειν μὴ κωλύων εἴ τις ἄλλος ἐπαγγέλεταί τι.

3. Explain the references:—

(α) τῶν χρημάτων αὐτοὶ ταμίαι καὶ πορισταί.

(β) ὅτι καὶ πρότερόν ποτ' ἀκούω ξενικὸν τρέφειν ἐν Κορίνθῳ τὴν πόλιν οὗ Πολύστρατος ἡγεῖτο καὶ Ἰφικράτης καὶ Χαβρίας καὶ ἄλλοι τινές, καὶ αὐτοὺς ὑμᾶς συστρατεύεσθαι.

GREEK TRANSLATION AT SIGHT.

WEDNESDAY, SEPT. 19TH:—AFTERNOON, 4 TO 5.

GREEK UNSEEN.

I. Translate:—

Ὀρθῶς μ' ἐπήρου, βούλομαι δὲ σοι, τέκνον,
(φρονεῖς γὰρ ἤδη, κἀποσώσαις ἂν πατρὸς
γνώμας φράσαντας, ἂν θάνω) παραινέσαι
κειμήλι' ἐσθλὰ καὶ νέοισι χρήσιμα.
βραχεῖ δὲ μύθῳ πολλὰ συλλαβὼν ἐρῶ.
πρῶτον φρένας μὲν ἠπίους ἔχειν χρεών·
τῷ πλουσίῳ τε τῷ τε μὴ διδοὺς μέρος,
ἴσον σεαυτὸν εὐσεβεῖν πᾶσιν δίδου.
δυοῖν παρόντοιν πραγμάτοιν πρὸς θάτερον
γνώμην προσάπτειν, τὴν ἐναντίαν μίσει.
ἀδίκως δὲ μὴ κτῶ χρήματ' ἢν βούλῃ πολὺν
χρόνον μελάθροις ἐμμένειν. τὰ γὰρ ἀδίκως
οἴκους ἐσελθόντ' οὐκ ἔχει σωτηρίαν.

ἔχειν δὲ πειρῶ· τοῦτο γὰρ τό τ' εὐγενὲς,
(καὶ τοὺς γάμους δίδωσι τοὺς πρώτους ἔχειν.)
ἐν τῷ πένεσθαι δ' ἐστὶν ἥ τ' ἀδοξία
ἀνανδρία τε ἥ τ' ἀτιμία βίου.
φίλων δὲ τοὺς μὲν μὴ χαλῶντας ἐν λόγοις
κέκτησο· τοὺς δὲ πρὸς χάριν σὺν ἡδονῇ
τῇ σῇ πονηροὺς κλεῖθρον εἰργέτω στέγης.

II. τί δὴ τὸ πάντων αἴτιον τούτων, καὶ τί δὴ ποθ' ἅπαντ' εἶχε καλῶς τότε, καὶ νῦν οὐκ ὀρθῶς; ὅτι τότε μὲν πράττειν καὶ στρατεύεσθαι τολμῶν αὐτὸς ὁ δῆμος δεσπότης τῶν πολιτευασμένων ἦν καὶ κύριος αὐτὸς ἁπάντων τῶν ἀγαθῶν, κἀγαπητὸν ἦν παρὰ τοῦ δήμου τῶν ἄλλων ἑκάστῳ καὶ τιμῆς καὶ ἀρχῆς κἀγαθοῦ τινος μεταλαβεῖν· νῦν δὲ τοὐναντίον κύριοι μὲν οἱ πολιτευόμενοὶ τῶν ἀγαθῶν, καὶ διὰ τούτων ἅπαντα πράττεται· ὑμεῖς, δ' ὁ δῆμος, ἐκνενευρισμένοι καὶ περιῃρημένοι χρήματα καὶ συμμάχους, ἐν ὑπηρέτου καὶ προσθήκης μέρει γεγένησθε, ἀγαπῶντες ἐὰν μεταδιδῶσι θεωρικῶν ὑμῖν, ἢ Βοηδρόμια πέμψωσιν οὗτοι καὶ τὸ πάντων ἀνδρειότατον, τῶν ὑμετερων αὐτῶν χάριν προσοφείλετε.

GREEK PROSE.

THURSDAY, SEPTEMBER 20TH :—AFTERNOON, 2 TO 3.

The following despatch was received from that City. The mob, infuriated by the fact that the foreigners arriving in constantly increasing numbers were obviously increasing in power and likely to divide up the land among themselves, urged on too by the Clubs, attacked the Ambassadors. Of these, one, a Lacedemonian, was slain, but the rest found refuge in the home of the Athenian Ambassador. The Lacedemonias then or immediately embarked many soldiers and put out. The Athenians too, although at that time involved in a war in Egypt that taxed their resources, sent a still greater expedition. There were those that objected that the Barbarians need not admit foreigners into their country if they did not choose—but as they had asserted this even in reference to Egypt they gained no credence.

GREEK GRAMMAR.

THURSDAY, SEPT. 20TH :—AFTERNOON, 3 TO 4.

1. Parse fully, adding principal parts:—

συμπλακῇ — πεπανθῶσι — ἐγχέας — ἀνέσπασαν ἀνιείς — συνενεχθέντα.

2. Give Nom. Sing., Genitive Sing., Accusative Plural, Dative Plural and Gender of the Greek for the following: continent, voyage, month, echo, fish, ox, harbour.

3. Give 1, 2 and 3 pers. plural of *ἦλων, ἔδωκα, ἔφην, ᾔδη, εἶπον, ἔοικα, πέφασμαι.* 2nd Sing. Aor. 1 Opt. Act.—Nom. Sing. Masc. Aor. 1 Part Pass.—3rd Sing. Pres. Opt. Act. of *πείθω, μισθόω.*

4. Give rule for contraction of verbs in *έω* where 1st Pers. Sing. Pres. Ind. Act uncontracted is dissyllabic.

5. Comment on the distinction between
σχήσειν and *ἕξειν.*
ἴσως φήσαι τις ἄν and *ὡς φήσειε τις ἄν.*

GREEK HISTORY.

THURSDAY, SEPT. 20TH :—AFTERNOON, 4 TO 5.

1. Give principal events in the Decelean War.

2. Describe briefly Phidias' life and works.

3. How did Athens obtain the place of precedence among the Ionian States?

4. Write notes on (*a*) Isokrates.
(*b*) Poros.
(*c*) Ostracism.

LATIN BOOKS AND SIGHT TRANSLATION.

MONDAY, SEPT. 17TH:—9 TO 12.

1. Transate :

Cum semel occideris, et de te splendida Minos
fecerit arbitria,
non, Torquate, genus, non te facundia, non te
restituet pietas.
Infernis neque enim tenebris Diana pudicum
liberat Hippolytum ;
nec Lethaea valet Theseus abrumpere caro
vincula Pirithoo.

2. Quote any lines of Horace in Book IV., referring to Britons, Sigambri, entertainment of Virgil, Anacreon, Pindar, Metaurus.

3. Translate :

Continuo, ventis surgentibus, aut freta ponti
incipiunt agitata tumescere, et aridus altis
montibus audiri fragor : aut resonantia longe
litora misceri, et nemorum increbescere murmur,
Iam sibi tum curvis male temperat unda carinis,
Cum medio celeres revolant ex aequore mergi,
clamoremque ferunt ad litora ; cumque marinae
in sicco ludunt fulicae : notasque paludes
deserit, atque altum supra volat ardea nubem.

4. Quote any lines in the First Georgic, referring to Ceraunia, Melicerta, Nisus, Cayster, Abydos, Dodona, Tmolos, Maenala. Which of these are places, and where are they situated ?

5. Translate :

Perventum inde ad frequentem cultoribus alium, ut inter montana, populum. Ibi non bello aperto, sed suis artibus, fraude et insidiis est prope circumventus. Magno natu principes castellorum oratores ad Poenum veniunt, alienis malis, utili exemplo, doctos memorantes amicitiam malle quam vim experiri Poenorum : itaque obedienter imperata facturos ; commeatum itinerisque duces et ad fidem promissorum obsides acciperet. Hannibal nec temere credendum nec aspernandos ratus, ne repudiati aperte hostes fierent, benigne cum respondisset, obsidibus quos dabant acceptis et commeatu quem in viam ipsi detulerant usus, nequaquam ut inter pacatos, composito agmine duces eorum sequitur.

FOR UNSEEN.

1. CH. Paulum hoc negoti mi obstat: Simus et Crito
vicini nostri hic ambigunt de finibus:
me cepere arbitrum: ibo ac dicam, ut dixeram
operam daturum me, hodie non posse iis dare.
Continuo hic adsum. ME. Ita quaeso. Di vostram fidem.
Ita comparatam esse hominum naturam omnium,
aliena ut melius videant et diiudicent,
quam sua? An eo fit, quia in re nostra aut gaudio
sumus praepediti nimio aut aegritudine?
Hic mihi nunc quanto plus sapit, quam egomet mihi?
CH. Dissolvi me, otiosus operam ut tibi darem.
Syrus est prehendendus atque adhortandus mihi.
A me nescio quis exit: concede hinc domum,
ne nos inter nos consentire sentiant.

Ter. Heaut III. 2, 89-102.

2. Quas dea per terras et quas erraverit un las,
dicere longa mora est; quaerenti defuit orbis.
Sicaniam repetit, dumque omnia lustrat eundo
venit et ad Cyanen. ea ni mutata fuisset,
omnia narrasset; sed et os et lingua volenti
dicere non aderant, nec quo loqueretur habebat.
signa tamen manifesta dedit notamque parenti,
illo forte loco delapsam in gurgite sacro
Persephones zonam summis ostendit in undis,
quam simul agnovit, tamquam tunc denique raptam
scisset, inornatos laniavit diva capillos.

Ovid Metam V. 462-47

GEOMETRY, ALGEBRA AND TRIGONOMETRY.

TUESDAY, SEPTEMBER 18TH:—MORNING, 9 TO 12.

Write the answers in separate books marked A and B respectively to correspond to the questions.

A.

1. Inscribe a square in a given circle.

2. If two chords of a circle intersect at a point within the circle,

the rectangle contained by the segments of one chord is equal to the rectangle contained by the segments of the other chord.

3. Find a mean proportional between two given straight lines.

4. A polygon on the hypotenuse of a right-angled triangle is equal to the sum of the similar polygons similarly described on the other sides.

5. Solve the equations:

(*a*) $\frac{x+3}{5} - \frac{6-x}{10} = x + \frac{7}{10}$.

(*b*) $\frac{x+y}{a+b} + \frac{x-y}{a-b} \quad 2, ax + by = a^2 + x^2$.

(*c*) $\frac{x+1}{x-1} + \frac{x+2}{x-2} = \frac{2(x+3)}{x-3}$.

(*d*) $\sqrt{x} - \sqrt{4-x} = \sqrt{4-3x}$.

6. A boat's crew can row 8 miles an hour in still water. What is the speed of a river's current if it take them 2 hours and 40 minutes to row 8 miles up and 8 miles down.

B.

7. Simplify (1) $(a\,b^{-3}\,c^5)^{\frac{1}{2}} \times (a^7\,b^4\,c^{-1})^{\frac{1}{3}} + (a^{-5}\,bc^2)^{\frac{1}{6}}$

(2) $\sqrt[3]{4} + \sqrt[3]{8}$

(3) $\sqrt{512} - \sqrt{50} - \sqrt{98}$

8. Simplify $\frac{x}{1+\frac{x}{y}} + \frac{7}{1+\frac{y}{x}} - \frac{2}{\frac{1}{x}+\frac{1}{y}}$.

9. Prove:—

(1) $\sin(A-B) = \sin A \cos B - \cos A \sin B$.

(2) $\sin A - \sin B = 2 \cos \frac{A+B}{2} \sin \frac{A-B}{2}$.

10. Show that in any triangle:

(1) $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$.

(2) $\cos \frac{A}{2} = \sqrt{\frac{s\,(s-a)}{b\,c}}$.

(3) Area of a triangle $= \sqrt{s(s-a)\,(s-b)\,(s-c)}$.

When $a\ b\ c$ are the sides of the triangle and $s = \frac{a+b+c}{2}$.

11. In a right-angled triangle $a = 1046.7$ yds, $c = 1856.2$ yds $C = 90°$, find the other parts of the triangle.

12. In a triangle $A = 40$, $b = 131$, $c = 72$, find the other parts.

GEOMETRY.

TUESDAY, SEPTEMBER 18TH, 1900 :—AFTERNOON, 2 TO 5.

(Write the answers in separate books marked A and B respectively to correspond to the questions.)

A.

1. Any two circles can be inverted into two equal circles.

2. If a variable circle touch two fixed circles, its radius has a constant ratio to the perpendicular from its centre on the radical axis.

3. The lines which join the extremities of the diameter of the circumscribing circle, which is perpendicular to the base of a triangle, to the vertical angle, are the internal and external bisectors of the vertical angle

4. Of all triangles having the same base and area, the perimeter of an isosceles triangle is a minimum.

5. The sum of the squares of the diagonals of a parallelogram is equal to the sum of the squares of its four sides.

6. Inscribe a square in a given triangle.

B.

7. Three times the sum of the square of the sides of a triangle is equal to four times the sum of the squares of the bisectors of the sides.

8. One vertex of a triangle given in species turns round a fixed point, and another moves along a fixed straight line ; find the locus of the remaining vertex.

9. If perpendiculars be drawn from a point on the circumference of a circle to the sides of an inscribed triangle, their feet are in the same straight line.

10. If two triangles be co-polar they shall also be co-axial and conversely; if they be co-axial they shall be co-polar.

11. Given a triangle, to describe the circle with respect to which the triangle is self-conjugate.

12. Any three straight lines drawn through the angles of a triangle so as to intersect in the same point divide the opposite sides into segments, such that the segments of any side are in a ratio compounded of the ratios of the segments of the other two sides.

ALGEBRA—THEORY OF EQUATIONS.

FRIDAY, SEPTEMBER 21ST:—MORNING, 9 TO 12.

Write the answers in separate books marked A and B respectively, to correspond to the questions.

A.

1. Find the equation whose roots are the reciprocals of those of

$$x^4 - 3x^3 + 7x^2 + 5x - 2 = 0.$$

2. Find the equation whose roots are those of

$$x^4 - 5x^3 + 7x^2 - 17x + 11 = 0$$

each diminished by 4.

3. In passing continuously from a value $a - h$ of x a little less than a real root a of the equation $f(x) = 0$ to a value $a + h$ a little greater, the polynomials $f(x)$ and $f'(x)$ have unlike signs immediately before the passage through the root, and like signs immediately after.

4. Find for what value of r the number of combinations of n things r at a time is greatest.

5. Sum to n terms the series

$$\frac{1}{(1+x)(1+2x)} + \frac{1}{(1+2x)(1+3x)} + \frac{1}{(1+3x)(1+4x)} + \text{etc.}$$

6. Find by the method of Indeterminate Coefficients the sum of $1.2.3 + 2.3.4 + 3.4.5 +$ etc. to n terms.

B.

7. Find the three cube roots of unity.

8. Find to three places of decimals the positive root of

$$x^3 - 6x - 13 = 0.$$

9. Prove that every equation of an even degree whose last term is negative has at least two real roots, one positive and the other negative.

10. Insert two Geometric means between $\frac{1}{9}$ and 9.

11. Expand e^x in a series of powers of x.

12. Break up $\frac{Ax^2 + Bx + C}{(x-a)(x-b)(x-c)}$ into Partial Fractions.

ENGLISH LITERATURE AND COMPOSITION.

WEDNESDAY, SEPT. 19TH :—9 TO 12.30.

(Write the answers to A, B, and C in separate books.)

A. SPENSER: *Faerie Queene, Book I.*

1. Narrate the incident of the contest with Errour, and explain its significance.

2. "In the Faerie Queene, there is a double allegory, historical and spiritual." Illustrate this by an examination of the characters of Duessa, Archimago, and Prince Arthur.

3. Explain, with etymological notes, the following words :—hardiment, ywrought, bootlesse, reliques, forlorne, enmoved, elfin, defeasaunce dæmo-gorgon, heben, errant, forespent, menage, mew, joyaunce, intendiment, yede, welkin, whylome, owch.

4. How far in Book I. does Spenser show political or religious partisanship ?

B. TENNYSON : *Selections.*

1. Illustrate from the poems studied Tennyson's conception of (*a*) Nature ; (*b*) Womanhood, stating with precision whence each illustration is taken.

2. Write notes on : (*a*) Tennyson's lyrical gift ; (*b*) his knowledge of the classics ; (*c*) his felicity of phrase and epithet.

3. Tell in your own words the story of "The Revenge," and quote half a dozen consecutive lines of the poem.

4. Refer to its poem and to its context each of the following extracts :

(*a*) More things are wrought by prayer
Than this world dreams of.

(*b*) How dull it is to pause, to make an end,
To rust unburnish'd, not to shine in use !

(*c*) And the reapers reap'd,
And the sun fell, and all the land was dark.

(*d*) O, but she will love him truly !

(*e*) Far off she seem'd to hear the dully sound
Of human footsteps fall.

(*f*) Upon the mooned domes aloof
In inmost Bagdat.

(*g*) Thick as autumn rains
Flash in the pools of whirling Simois.

h) Her that died
To save her father's vow.

C. ENGLISH COMPOSITION.

Write an essay of not less than *three* pages on any one of the following subjects :—

(*a*) Tennyson's conception of the character of Ulysses.

(*b*) Mediaeval town life.

(*c*) The Red Cross Knight.

ENGLISH.

TRENCH : *Study of Words.*

FRIDAY, SEPTEMBER 21ST :—4 TO 5.15 P.M.

1. Show how the following words illustrate (*a*) the poetry, (*b*) the history, or (*c*) the morality in words :—idiot, squirrel, copper, tobacco, sierra, leopard, celandine, virtue, silly, sacrament, carbuncle, dunce prude, miser, halcyon, mesmerize.

2. Give a dozen instances (*a*) of depreciation in the meaning of words (*b*) of differentiation of synonyms.

3. Show how the successive invasions of England have left their marks in the names of places.

4. Discuss the advantages and disadvantages of phonetic spelling.

BOURSES DE DEUXIEME ANNÉE.

LE 20 SEPTEMBRE, 1900.

1. Traduire en français :—

(*a*) Alfonso, king of Arragon, went one day to a jeweller's house to purchase some diamonds to make a present of them to a foreign prince. The jeweller spread before the king and his courtiers all his finest diamonds and other jewels. After having made his purchases the king returned to his carriage, and he had just seated himself when the jeweller came out to beg him to do him the honour of returning to his house for a moment as he had something important to say to him. The king and the courtiers came back into the house, and then the jeweller said that some one of the suite had just taken a diamond of great value. The king looked sternly at those who accompanied him, saying, "He who has stolen the diamond deserves the severest punishment; but the discovery of his name would probably disgrace an honourable family; I will spare them this shame.

(*b*) I have much pleasure in introducing to this audience Mr. F., a gentleman so well known to the Canadian public, that it would appear to be quite superfluous to go through the ceremony of an introduction. Mr. F. has, I do not hesitate to say, conferred an honour upon our Society by accepting our invitation to give an address. We shall not be ungrateful, however. I can assure Mr. F. that the opportunity of hearing him has been awaited with keen interest by all who are present to-day.

2. Ecrire une composition française sur un des sujets suivants (de 150 à 200 mots)

La guerre sud-africaine.
Les Etats-Unis.
L amiral Dewey.

3. Traduire en anglais :

Me prenez-vous pour un idiot avec votre sermon sur la danse? reprit Montauran. Ne figureriez-vous pas de bon cœur dans une chaconne pour vous retrouver rétablis sous votre nouveau nom de pères de la Foi?..... Ignorez-vous que les Bretons sortent de la messe pour aller danser? Ignorez-vous aussi que MM. Hyde de Neuville et d'Andigné ont eu, il y a cinq jours, une conférence avec le premier consul sur la question de rétablir Sa

Majesté Louis XVIII ? Si je m'apprête en ce moment pour aller risquer un coup de main si téméraire, c'est uniquement pour ajouter à ces négociations le poids de nos souliers ferrés. Ignorez-vous que tous les chefs de la Vendée, et même Fontaine, parlent de se soumettre ? Ah ! monsieur, on a évidemment trompé les princes sur l'état de la France. Les dévouements dont on les entretient sont des dévouements de position. M. l'abbé, si j'ai mis les pieds dans le sang, je ne veux m'y mettre jusqu'à la ceinture qu'à bon escient. Je me suis dévoué au roi et non pas à quatre cerveaux brûlés, à des hommes perdus de dettes comme Rifoel, à des chauffeurs, à...

BALZAC.

4. Discuter l'emploi du participe passé précédé de *le peu* dans sa signification de (1) *le manque, l'insuffisance.* (2) *une petite quantité, une quantité suffisante.* Donner des exemples.

5. Dire quand le participe présent s'emploie (*a*) comme verbe, (*b*) comme adjectif. Donner des exemples.

6. Faire des remarques sur l'orthographe de certains verbes réguliers de la première conjugaison, comme *avancer, jeter, mener, partager, soulever.*

7. Calquer sur le premier paragraphe chaque phrase du devoir suivant :

(*a*) Le général meurt : tout se confond, la paix s'éloigne, l'ordre disparaît, les ennemis se réjouissent, toute l'armée est consternée.

(*b*) Le général est mort : tout s'est confondu,...

(*c*) Quand le général mourra, tout se confondra,...

(*d*) Le général mourut : soudain tout se confondit,...

(*e*) Si le général mourait, tout se confondrait,...

(*f*) Si le général était mort, tout se serait confondu,...

(*g*) Il faut bien que le général meure, pour que tout se confonde, que...

(*h*) Il faudrait que le général mourût, pour que tout se confondît que...

(*i*) Pourquoi, lorsque le général meurt, tout ne se confondrait-il pas...?

(*j*) Pourquoi, lorsque le général fut mort, tout ne se serait-il pas confondu...?

7. Montrer par des exemples la construction grammaticale après les verbes *craindre, douter, espérer, sembler, souhaiter, falloir.*

9. Expliquer les différents emplois de l'imparfait de l'indicatif et du passé défini.

10. Donner les règles de l'accord du participe passé

(*a*) des verbes pronominaux,

(*b*) des verbes conjugués avec l'auxiliaire avoir,

(*c*) devant l'infinitif,

(*d*) sans auxiliaire,

(*e*) des verbes impersonnels.

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1. Peindre, à grands traits *Jack*, d'après *Daudet*,

   (*a*) à l'école,

   (*b*) en apprentissage,

   (*c*) à l'atelier,

   (*d*) à l'hôpital.

2. (*a*) Faire ressortir quelques bonnes leçons qu'enseigne ce livre.

   (*b*) Quels abus expose-t-il ?

3. Traduire en anglais :

Que faire ?—*Elle* d'abord ! elle avant tout, rien qu'elle
Dût-on voir sur un mur rejaillir ma cervelle,
Dût le gibet me prendre ou l'enfer me saisir !
Il faut que je la sauve ! Oui ! mais y réussir ?
Comment faire ? Donner mon sang, mon cœur, mon âme,
Ce n'est rien, c'est aisé. Mais rompre cette trame !
Deviner !.....deviner ! car il faut deviner !
Ce que cet homme a pu construire et combiner !
Il sort soudain de l'ombre et puis il s'y replonge,
Et là, seul dans sa nuit, que fait-il ?—Quand j'y songe,
Dans le premier moment je l'ai prié pour moi !
Je suis un lâche, et puis c'est stupide—Eh bien, quoi !
C'est un homme méchant.—Mais que je m'imagine
—La chose a sans nul doute une ancienne origine,—
Que lorsqu'il tient sa proie et la mâche à moitié,
Ce démon va lâcher la reine, par pitié
Pour son valet ! Peut-on fléchir les bêtes fauves ?
—Mais misérable ! il faut pourtant que tu la sauves !
C'est toi qui l'a perdue ! à tout prix il le faut !
—C'est fini. *Me voilà retombé ! De si haut !*
Si bas ! J'ai donc rêvé !—Ho ! je veux qu'elle échappe !

Ruy Blas.

4. (*a*) Expliquer le contexte de l'extrait ci-dessus.

(*b*) Indiquer et commenter les parties du drame auxquelles les expres, sions en italique se rapportent ou font allusion.

5. Rendre en anglais les expressions suivantes de *Ruy Blas* :

(1) De ce pas, va faire nos apprêts. (2) On en entend de belles. (3) Le sort me coiffa de folie en naissant. (4) Je m'en passe. (5) Tenez, maître-abrégeons la visite. (6) Je croyais, pauvre esprit, qu'au monde je manquais. (7) Les Basan sont, je crois, d'assez francs gentilshommes. (8) Le bonhomme est aveugle et se défend de l'être. (9) Couvrez-vous. (10) Il n'est rien de tel qu'une prison. (11) Qui me vaut ce bonheur ? (12) En somme. (13) Faire son honnête homme. (14) De point en point. (15) Si fait. (16) Mais c'est à se briser le front contre le mur !

6. (*a*) Faire une esquisse de la vie de Balzac ;
(*b*) Décrire et apprécier ses œuvres.

7. Tracer le portrait de *Marche-à-Terre* et son rôle, et celui de *Mademoiselle de Verneuil* tels qu'ils se trouvent dans *Les Chouans*.

GERMAN.

TRANSLATION AND "RETRANSLATION" (*mainly at sight.*)

SEPT., 1900.—THREE HOURS.

1. Translate into English (*at sight*) :—

(*a*) *Wallenstein's Tod*, Act II, Scene I, the first paragraph

(*b*)

Und lauter immer wird die Frage,
Und ahnend fliegt's mit Blitzesschlage
Durch alle Herzen : „Gebet Acht,
Das ist der Eumeniden Macht !
Der fromme Dichter wird gerochen,
Der Mörder bietet selbst sich dar —
Ergreift ihn, der das Wort gesprochen,
Und ihn, an den's gerichtet war!"

Doch dem war kaum das Wort entfahren,
Möcht' er's im Busen gern bewahren ;
Umsonst! Der schreckenbleiche Mund

Macht schnell die Schuldbewußten kund.
Man reißt und schleppt sie vor den Richter,
Die Scene wird zum Tribunal,
Und es gestehn die Bösewichter,
Getroffen von der Rache Strahl.

(*c*) Goethe's *Reineke Fuchs*, Canto X, the last paragraph.

(*d*) Des Abends komme ich zurück zu Tische, es waren noch Wenige in der Gaststube; die würfelten auf einer Ecke, hatten das Tischtuch zurückgeschlagen. Da kommt der ehrliche A . . . hinein, legt seinen Hut nieder, indem er mich ansieht, tritt zu mir und sagt leise: „Du hast Verdruß gehabt?" „Ich?" sagte ich. „Der Graf hat Dich aus der Gesellschaft gewiesen." „Hole sie der Teufel!" sagte ich; „mir war's lieb, daß ich in die freie Luft kam."—„Gut," sagte er, „daß Du es auf die leichte Achsel nimmst! Nur verdrießt mich's, es ist schon überall herum."— Da fing mich das Ding erst zu wurmen an. Alle, die zu Tische kamen und mich ansahen, dachte ich, die sehen Dich darum an! Das gab böses Blut.

Und da man nun heute gar, wo ich hintrete, mich bedauert; da ich höre, daß meine Neider triumphieren und sagen: da sähe man's, wo es mit den Übermütigen hinausginge, die sich ihres Bischen Kopfs überhöben und glaubten sich darum über alle Verhältnisse hinaussetzen zu dürfen, und was des Hundegeschwätzes mehr ist — da möchte man sich ein Messer ins Herz bohren. Denn man rede von Selbständigkeit, was man will, den will ich sehen, der dulden kann, daß Schurken über ihn reden, wenn sie einen Vorteil über ihn haben. Wenn ihr Geschwätze leer ist, ach, da kann man sie leicht lassen.

2. Translate into German (*at sight*):—

(*a*) The young gentleman — his name was Carlo — could already make himself understood in the German language, only the *sch* occasioned him some difficulty, but that was piquant; at least it seemed so to the daughter of the house. His demeanour was very modest, and he thoroughly understood the business into

which he was introduced on the day after his arrival. Of course Carlo's position in the house was not that of an ordinary butcher's apprentice. He dined with the family and accompanied its members on Sunday excursions.

(*b*) I am in a position to instruct you about that too, rejoined Mr. Blechschmied. But, to tell the truth, I must confess that I do not know it as the result of my own investigations. A few years ago, when my son, who, as you know, has written a book on trichinæ, was still studying, I visited him at the University. On that occasion I made the acquaintance of an interesting young man who was also a student. This young man offered to show me the town, as my son was busy in the forenoon in the hospital. Among other things we saw a picture by a celebrated painter, a picture which represented a naval battle, and my guide, the student, explained the whole event to me. The one who lost the battle was no other than King Xerxes. I have forgotten the name of the victor, that is a minor matter, but the island near which the battle was fought was called Salamis.

(*c*) "So you affirm," said the Emperor Trajan to the Rabbi Joshua, "that God is everywhere, that he is present at this moment here in this palace, in this hall even. I must doubt your word, so long as I have not seen him with my own eyes."

"Yes, God is omnipotent," replied the Rabbi, "but he is invisible; no mortal eye could bear the splendour of his glory."

(*d*) What most interested our travellers in the ancient city of Frankfort was neither the opera nor the Ariadne of Dannecker, but the house in which Goethe was born, and the scenes he visited in his childhood and remembered in his old age. Such, for example, are the walks around the city, outside the moat (*Graben*); the bridge over the Main, with the golden cock on the cross, which the poet beheld and marvelled at when a boy; and the garden in which his grandfather walked up and down among the fruit-trees and rose-bushes, in long morning-gown and black velvet cap (*Sammetmütze*). Thus, O Genius! are thy footprints hallowed, and the star shines forever over the place of thy nativity.

GERMAN.

GRAMMAR AND TRANSLATION OF PRESCRIBED TEXTS.

SEPT. 20TH, 1900:—AFTERNOON, 2 TO 5.

1 Translate into English:—

(*a*) Schiller, *Der Gang nach dem Eisenhammer*, Stanzas 11, 12.
(*b*) Goethe, *Hermann und Dorothea*, Canto VI (Klio), lines 1-19.
(*c*) Canto VIII (Melpomene), the third paragraph.
(*d*) Schiller, *Der Neffe als Onkel*, Act II, Scene 9, *Champagne.* Ich, gnädiger Herr, ich, will mit unterzeichnen . . . to end of scene.
(*e*) *Die Hochzeitsreise*, Act I, Scene 4, lines 12-25.
(*f*) *Der Fluch der Schönheit*, Ch. II, first twelve lines.
(*g*) *Die Nonna*, Ch. II, first twelve lines.

2. What is the difference between *stehen* and *gestehen*, *horchen* and *gehorchen*, *hören* and *gehören*, *währen* and *gewähren*, *sehen*, *ersehen*, *besehen*, *versehen* and *zusehen?*

3. What preposition is used after the verbs *wählen*, *ernennen*, *erklären*, *halten*, *denken*? Make a sentence to illustrate each case.

4. Comment on (*a*) the verb in *Mir meldet er aus Linz er läge krank*, (*b*) the pronouns in *Ihr Instrumente spottet mein*, (*c*), the participle in *Das heiszt auch für die Zukunft gesorgt*, (*d*) the command *Ins Feld, in die Freiheit gezogen*, (*e*) the verbs in *Lebtest du noch, so würde ich dich lieben von dieser Zeit.* (*f*) Give the past participle of *handhaben*, *stattfinden*, *frühstücken*, *anempfinden.*

5. Mention two cases in which the definite article is used in German and not in English, and two in which it is used in English and not in German.

6. Turn into *oratio obliqua*:—Ich sagte ihm, "Du sollst dir nur nicht einbilden, dass ich dich ungestraft werde bleiben lassen. Meinst du denn, du könnest mich zum Besten haben?"

7. Translate:—
(*a*) The citizens, having had no food for three days, scarcely defended themselves.
(*b*) Having written my letter, I took a walk into the country.
(*c*) The man's having poor clothes made them think him a beggar.
(*d*) Having no money is not a sin.

8. What are the sources of Goethe's *Hermann und Dorothea* In what respects has he altered them? When was the poem written

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ANALYTICAL GEOMETRY—(*First Paper*).

MONDAY, SEPTEMBER 17TH :—MORNING, 9 TO 12.

1. Prove that the radius of curvature at any point $x'y'$ of the ellipse

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

is $\dfrac{(a^2 - e^2 x'^2)^{\frac{3}{2}}}{ab}$

2. If two hyperbolas have parallel asymptotes, they are similar.

3. Find the co-ordinates of the intersection of the two tangents at the points $x'\ y'$, $x''\ y''$ to the parabola $y^2 = px$.

4. Find the locus of the centre of a circle which makes given intercepts on two given lines.

5. Find the equation of a tangent to the ellipse in terms of its inclination to the axes of x.

6. The difference of the squares of any pair of conjugate diameters of an hyperbola is constant.

7. Taking the general equation of a conic, prove that in general, the squares of the ordinates of any diameter are proportional to the rectangles under the segments which they make on the diameter.

8. Investigate formulae for transformation of co-ordinates in the two following cases :—

(*a*) When rectangular axes are turned round the origin through an angle θ.

(*b*) When rectangular axes are changed to oblique axes (inclination $= \omega$), the angle between the old and new axes of x being β and the origin being the same.

(*c*) Apply the formulae in (*b*) to transform the equation of an hyperbola from the axes of the curve to the asymptotes as axes of co-ordinates.

9. Find the condition that the straight lines represented by

$$px^2 - qx\,y + ry^2 = 0$$

should be coincident.

10. Find the polar equation of a circle, (*a*) in its most general form, (*b*) when the pole is on the circle.

11. Find the circle through the points (2,3), (4,5), (6,1).

12. Find the locus of middle points of rectangles inscribed in a given triangle.

ANALYTICAL GEOMETRY—(*Second Paper.*)

TUESDAY, SEPTEMBER 18TH —MORNING, 9 TO 12.

1. If three conic sections have one chord common to all, their three other chords will pass through the same point.

2. The anharmonic ratio of a pencil whose sides pass through four fixed points of a conic, and whose vertex is any variable point of it, is constant.

3. Show that every parabola may be regarded as having one tangent altogether at an infinite distance.

4. Find the angle contained by the two tangents through the point $x'y'$ to the parabola $y^2 = 4mx$.

5. Find the axes of the ellipse $14x^2 - 4xy + 11y^2 = 60$, and transform the equation to them.

6. If two diameters of a conic section be such that one of them bisects all chords parallel to the other, then conversely the second will bisect all chords parallel to the first.

7. Find the geometrical interpretation of the equation in trilinear co-ordinates of the circle circumscribing a triangle, viz.,

$$\beta\gamma \sin A + \gamma\alpha \sin B + \alpha\beta \sin C = 0.$$

8. Given the base and vertical angle of a triangle, find the locus of the intersection of the perpendiculars of the triangle.

9. Find the lines represented by the equation

$$x^2 - 5xy + 4y^2 + x + 2y - 2 = 0.$$

10. Express in trilinear co-ordinates the equation of the parallel to a given line $l\alpha + m\beta + n\gamma = 0$.

11. Show that $\frac{k}{k'}$ is the anharmonic ratio of the pencil formed by the four lines $\alpha = 0$; $\beta = 0$; $\alpha - k\beta = 0$; $\alpha - k'\beta = 0$.

12. Given n fixed right lines and a fixed point O; if through this point any radius vector be drawn meeting the right lines in the points r_1, r_2, r_3, r^n, and in this a point R be taken such that

$$\frac{n}{OR} = \frac{1}{Or_1} + \frac{1}{Or_2} \div \frac{1}{Or_3} + ac + \frac{1}{Or_n}$$

find the locus of R.

CALCULUS.

THURSDAY, SEPT. 20TH:—MORNING, 9 TO 12.

1. When the equation of a curve is given in polar co ordinates, find an expression for the tangent of the angle between the tangent and radius vector.

(*a*) Hence show that in the logarithmic spiral $r = a^{\theta}$ the angle is constant.

(*b*) Prove that the *evolute* of the logarithmic spiral is another logarithmic spiral, and state its position with regard to the given spiral.

2. The chord of curvature which passes through the origin in the cardioid

$$r = a\ (1 + \cos\ \theta)$$

is $\frac{2}{3}\ r$. (Prove any formula you employ).

3. Prove that the subtangent in the logarithmic curve $y = a_x$ is of constant length.

4 Find the equation of the normal at any point on the curve $y^m = ax^n$.

5. Given the equation

$$z = x + y\ \phi\ (z)$$

prove Lagrange's theorem for expanding any function of z in ascending powers of y.

(*a*) Apply it to find sin z when

$$z = x + y\ \sin\ z$$

7. Show that $b + c\,(x - a)^{\frac{2}{3}}$, when $x = a$, is a maximum or a minimum according as c is negative or positive.

8. Find the volume of a sphere.

9. Find the length of the logarithmic curve.

10. Investigate a formula for finding the area of a part of an hyperbola included between the curve and the ordinate and abscissa of any point on it.

11. Find the integrals

$$\int \frac{(2\cos x + 3\sin x)\,dx}{3\cos x + 2\sin x} \; ; \; \int e^x \frac{1 + x\log x}{x}\,dx \; ; \; \int \frac{dx}{\cos x\,(5 + 3\cos x)}$$

12. Find the formula of reduction for

$$\int \cos x \sin nx\,dx.$$

HIGHER ALGEBRA—THEORY OF EQUATIONS—TRIGONOMETRY.

FRIDAY, SEPT. 21ST :—MORNING, 9 TO 12.

1. Write down in the ordinary form the equations

$$\frac{x}{\begin{vmatrix} 3, & 1, & 2 \\ -1 & 4 & 0 \\ -2 & -3 & 1 \end{vmatrix}} = \frac{y}{\begin{vmatrix} -2, & 1, & 3 \\ 0 & -1 & 4 \\ 3 & 2 & 1 \end{vmatrix}} = \frac{z}{\begin{vmatrix} 2 & -1 & 4 \\ 2 & 3 & 5 \\ 2 & -2 & -6 \end{vmatrix}}$$

2. The product of two determinants is the determinant whose constituents are the sums of the products of the constituents in any row of one by the corresponding constituents in any row of the other.

3. Determine the number and signs of the real roots of the equation

$$x^4 - 5x^3 + 10x^2 - 5x - 21 = 0$$

4. Prove any rule for finding a superior limit to the positive roots of an equation and apply it to

$$x^4 - 5x^3 + 40x^2 - 8x + 23 = 0$$

5. Find the multiple roots of the equation

$$x^3 + x^2 - 16x + 20 = 0$$

6. If a, b, c, be the roots of the cubic

$$x^3 - px^2 + qx - r = 0$$

form the equation whose roots are

$$bc + \frac{1}{a},\ ca + \frac{1}{b},\ ab + \frac{1}{c}$$

7. In a spherical triangle, given $a = 68° 45'$, $b = 53° 15'$, $c = 46° 30'$, find the angle A.

8. In a right-angled spherical triangle given the hypotenuse $c = 91° 18'$ and $a = 72° 27'$, find B.

9. If a point O be inside a closed surface, the sum of the solid angles subtended at O by all the elements of the surface is 2π.

10. Prove that only one spherical triangle can be constructed with three arcs, any two of which are greater than the third.

LOGIC.

WEDNESDAY, 19TH SEPTEMBER, 1900 :—MORNING, 9 TO 12.

1. In how far is the science of Formal Logic dependent on language?

2. Give the logical characteristics of the following terms: Library scientia scientiarum, franchise, the Lion of Judah, intuition, apprehension.

3. Explain briefly and illustrate:—quantity in propositions, quality of propositions, distribution.

4. Distinguish clearly between contrary and contradictory propositions. Shew why the latter are to be preferred for the purpose of refuting an opponent in discussion.

5. Give the converse of each of the following propositions:—

(*a*) No one is free who does not control himself.

(*b*) Some inorganic substances do not contain carbon.

(*c*) Non omnis moriar.

(*d*) All men are not born equal.

6. What is the Figure of a Syllogism? Why does a syllogism in the Second Figure admit of none but negative conclusions?

7. Explain and illustrate: the fallacy of denying the antecedent, post hoc ergo propter hoc, simple begging of the question, fallacy of accident. (*Original* illustration preferred.)

8. Test the following instances of reasoning:—

(*a*) Wealth is value; value is purchasing power; purchasing power is the product of labour and the product of labour is property; therefore wealth is property.

(*b*) Capital punishment is a violation of natural justice. No society has a right to deprive the individual of that which he has not obtained from that society.

9. "Induction may be defined as the operation of discovering and proving general propositions." Explain and comment fully on this.

10. What is the Law of Universal Causation? What is meant by saying that it lies at the basis of every process of inductive reasoning?

11. Give, with original examples, the current distinction between observation and experiment. What does a recent writer mean by the assertion that "experiment not only interrogates nature but compels the answer"?

12. Explain and illustrate fully any *one* of the four recognized methods of inductive research.

GREEK COMPOSITION AND SIGHT TRANSLATION.

TUESDAY, SEPTEMBER 18TH:—AFTERNOON, 2 TO 5.

1. Translate into Greek:—

On the coast of Euboea are many rocks so that many ships are often broken up and the men killed. And there came a young priest to that country, who was a kindly man and wished to do well to all men to the best of his power. And a ship, sailing from Egypt northward, was carried on to the rocks by a storm; of those on board one man alone was carried ashore and no one knew whether he

was dead or alive. So the priest, anxious to bring him back to life, if that were possible, asked one of the bystanders how they usually treated men in this condition. But he replied, "we search his clothes to see if there is any money there."

2. Translate into English:—

(*a*) Protest against the indiscriminate giving of rewards.

Ἐπεὶ δὲ στεφάνων ἀναμνήσθην καὶ δωρεῶν, ἕως ἔτ μέμνημαι, προλέγω ὑμῖν, ἄνδρες Ἀθηναῖοι, εἰ μὴ καταλύ σετε τὰς ἀφθόνους ταύτας δωρεὰς καὶ τοὺς εἰκῇ διδομένους στεφάνους, οὔθ' οἱ τιμώμενοι χάριν ὑμῖν εἴσονται οὔτε τὰ τῆς πόλεως πράγματα ἐπανορθώσεται· τοὺς μὲν γὰρ πονη ροὺς οὐ μή ποτε βελτίους ποιήσετε, τοὺς δὲ χρηστοὺς εἰς τὴν ἐσχάτην ἀθυμίαν ἐμβαλεῖτε. ὅτι δ' ἀληθῆ λέγω, μεγάλα τούτων οἶμαι σημεῖα δείξειν ὑμῖν. εἰ γάρ τις ὑμᾶς ἐρωτήσειε πότερον ὑμῖν ἐνδοξοτέρα δοκεῖ ἡ πόλις ἡμῶν εἶναι ἐπὶ τῶν νυνὶ καιρῶν ἢ ἐπὶ τῶν προγόνων, ἅπαντες ἂν ὁμολογήσαι-τε, ἐπὶ τῶν προγόνων.

(*b*) Ὀρέστ', ἐγώ τοι σὸν καταιδοῦμαι κάρα
καὶ ξυμπονῆσαι σοῖς κακοῖσι βούλομαι·
καὶ χρὴ γὰρ οὕτω τῶν ὁμαιμόνων κακὰ
συνεκκομίζειν, δύναμιν ἣν διδῷ θεός.
τὸ δ' αὖ δύνασθαι πρὸς θεῶν χρῄζω τυχεῖν.
μάχῃ μὲν οὖν ἂν οὐχ ὑπερβαλοίμεθα
Πελασγὸν Αργος· εἰ δὲ μαλθακοῖς λόγοις
δυναίμεθ', ἐνταῦθ' ἐλπίδος προσήκομεν.
σμικροῖσι γὰρ τὰ μεγάλα πῶς ἕλοι τις ἂν
πόνοισιν; ἀμαθὲς καὶ τὸ βούλεσθαι τάδε.

GREEK BOOKS.

MONDAY, SEPT. 24TH:—MORNING, 9 TO 12.

A.—SOPHOCLES, ANTIGONE.

Translate, with notes on words and phrases underlined:—

(1) καὶ φθέγμα καὶ ἀνεμόεν
φρόνημα καὶ ἀστυνόμους ὀργὰς ἐδιδάξατο καὶ δυσαύλων
πάγων ἐναίθρεια καὶ δύσομβρα φεύγειν βέλη,
παντοπόρος· ἄπορος ἐπ' οὐδὲν ἔρχεται
τὸ μέλλον· Ἅιδα μόνον φεῦξιν οὐκ ἐπάξεται·
νόσων δ' ἀμηχάνων φυγὰς ξυμπέφρασται.

(2) τοιοῦτον ἦν τὸ πρᾶγμ'. ὅπως γὰρ ἥκομεν,
πρὸς σοῦ τὰ δείν' ἐκεῖν' ἐπηπειλημένοι,
πᾶσαν κόνιν σήραντες ἣ κατεῖχε τὸν
νέκυν, μυδῶν τε σῶμα γυμνώσαντες εὖ,
καθήμεθ' ἄκρων ἐκ πάγων ὑπήνεμοι,
ὀσμὴν ἀπ' αὐτοῦ μὴ βάλῃ πεφευγότες,
ἐγερτὶ κινῶν ἄνδρ' ἀνὴρ ἐπιρρόθοις
κακοῖσιν, εἴ τις τοῦδ' ἀκηδήσοι πόνου.

(3) ἤκουσα δὴ λυγροτάταν ὀλέσθαι τὰν Φρυγίαν ξέναν
Ταντάλου Σιπύλῳ πρὸς ἄκρῳ, τὰν κισσὸς ὡς ἀτενὴς
πετραία βλάστα δάμασεν· καί νιν ὄμβροι τακομέναν,
ὡς φάτις ἀνδρῶν,
χιών τ' οὐδαμὰ λείπει, τέγγει δ' ὑπ' ὀφρύσι παγκλαύτοις
δειράδας· ᾇ με δαίμων ὁμοιοτάταν κατευνάζει.

To what myth is allusion made?

(4) κᾆτ' οὐ δέχονται θυστάδας λιτὰς ἔτι
θεοὶ παρ' ἡμῶν οὐδὲ μηρίων φλόγα,
οὐδ' ὄρνις εὐσήμους ἀπορροιβδεῖ βοάς,
ἀνδροφθόρου βεβρῶτες αἵματος λίπος.

(5) τὰν ἐκ πασᾶν τιμᾶς ὑπερτάταν πόλεων
ματρὶ σὺν κεραυνίᾳ·
καὶ νῦν, ὡς βιαιας ἔχεται
πάνδαμος πόλις ἐπι νόσου,
μολεῖν καθαρῷ ποδὶ Παρνασίαν ὑπὲρ κλιτὺν
ἢ στονόεντα πορθμόν.

B.—THUCYDIDES VI.

1. Translate, with notes on words and phrases underlined :—

(a) καὶ ἔρως ἐνέπεσε τοῖς πᾶσιν ὁμοίως ἐκπλεῦσαι· τοῖς μὲν γὰρ πρεσβυτέροις ὡς ἢ καταστρεψομένοις ἐφ' ἃ ἔπλεον ἢ οὐδὲν ἂν σφαλεῖσαν μεγάλην δύναμιν, τοῖς δ' ἐν τῇ ἡλικίᾳ τῆς τε ἀπούσης πόθῳ ὄψεως καὶ θεωρίας, καὶ εὐέλπιδες ὄντες σωθήσεσθαι· ὁ δὲ πολὺς ὅμιλος καὶ στρατιώτης ἔν τε τῷ παρόντι ἀργύριον οἴσειν καὶ προσκτήσεσθαι δύναμιν ὅθεν ἀίδιον μισθοφορὰν ὑπάρξειν· ὥστε διὰ τὴν ἄγαν τῶν πλειόνων ἐπιθυμίαν, εἴ τῳ ἄρα καὶ μὴ ἤρεσκε, δεδιὼς μὴ ἀντιχειροτονῶν κακόνους δόξειεν εἶναι τῇ πόλει ἡσυχίαν ἦγε.

(b) ὥστε (παρὰ τοσοῦτον γιγνώσκω) μόλις ἄν μοι δοκοῦσιν, εἰ πόλιν ἑτέραν τοσαύτην ὅσαι Συράκουσαί εἰσιν ἔλθοιεν ἔχοντες καὶ ὅμορον οἰκίσαντες τὸν πόλεμον ποιοῖντο, οὐκ ἂν παντάπασι διαφθαρῆναι, ἢ που γε δὴ ἐν πάσῃ πολεμίᾳ Σικελίᾳ (ξυστήσεται γάρ) στρατοπέδῳ τε ἐκ νεῶν ἱδρυθέντι καὶ ἐκ σκηνιδίων καὶ ἀναγκαίας παρασκευῆς, οὐκ ἐπὶ πολὺ ὑπὸ τῶν ἡμετερων ἱππέων ἐξιόντες.

(*c*) τὸ δ' ὑπήκοον τῶν ξυμμάχων μέγιστον μὲν περὶ τῆς αὐτίκα ἀνελπίστου σωτηρίας, ἢν μὴ κρατῶσι, τὸ πρόθυμον εἶχον, ἔπειτα δὲ ἐν παρέργῳ καὶ εἴ τι ἄλλο ξυγκαταστρεψάμενον ῥᾷον αὐτοῖς ὑπακούσεται.

(*d*) ἐν παντὶ γὰρ πᾶς χωρίῳ καὶ ᾧ μὴ ὑπάρχομεν ὅ τε οἰόμενος ἀδικήσεσθαι καὶ ὁ ἐπιβουλεύων διὰ τὸ ἑτοίμην ὑπεῖναι ἐλπίδα τῷ μὲν ἀντιτυχεῖν ἐπικουρίας ἀφ' ἡμῶν, τῷ δέ, εἰ ἥξομεν, μὴ ἀδεεῖ εἶναι κινδυνεύειν, ἀμφότεροι ἀναγκάζονται ὁ μὲ ἄκων σωφρονεῖν, ὁ δ' ἀπραγμόνως σῴζεσθαι.

By whom are these words spoken.

(*e*) Τῇ δ' ὑστεραίᾳ ἀπὸ τοῦ κύκλου ἐτείχιζον οἱ Ἀθηναῖοι τὸν κρημνὸν τὸν ὑπὲρ τοῦ ἕλους, ὃς τῶν Ἐπιπολῶν ταύτῃ πρὸς τὸν μέγαν λιμένα ὁρᾷ, καὶ ἦπερ αὐτοῖς βραχύτατον ἐγίγνετο καταβᾶσι διὰ τοῦ ὁμαλοῦ καὶ τοῦ ἕλους ἐς τὸν λιμένα τὸ περιτείχισμα.

Draw a sketch-map to illustrate this.

2. What account does Thucydides give of the affair of Harmodius and Aristyciton ?

C.—PLATO, SELECTIONS.

Translate, with notes on words and phrases underlined :—

(1) τὰ μὲν οὖν ὁρώμενα τῆς ἰδέας, ὦ φίλε παῖ Γλαύκωνος, δοκεῖς μοι οὐδένα τῶν προγόνων καταισχύνειν· εἰ δὲ δὴ καὶ πρὸς σωφροσύνην καὶ πρὸς τἆλλα κατὰ τὸν τοῦδε λόγον ἱκανῶς πέφυκας, μακάριόν σε, ἦν δ' ἐγώ, ὦ φίλε Χαρμίδη, ἡ μήτηρ ἔτικτεν. ἔχει δ' οὖν οὕτως. εἰ μέν σοι ἤδη πάρεστιν, ὡς λέγει Κριτίας ὅδε, σωφροσύνη καὶ εἶ σώφρων ἱκανῶς, οὐδὲν ἔτι σοι ἔδει οὔτε τῶν Ζαλμόξιδος οὔτε τῶν Ἀβάριδος τοῦ Ὑπερβορέου ἐπῳδῶν, ἀλλ' αὐτό σοι ἂν ἤδη

δοτέον εἴη το τῆς κεφαλῆς φάρμακον· εἰ δ' ἔτι τούτων ἐπιδεὴς εἶναι δοκεῖς, ἐπαστέον πρὸ τῆς τοῦ φαρμάκου δόσεως.

(2) Δόξαν ἡμῖν ταῦτα ἐπορευόμεθα. ἐπειδὴ δὲ ἐν τῷ προθύρῳ ἐγενόμεθα, ἐπιστάντες περί τινος λύγου διελεγόμεθα, ὃς ἡμῖν κατὰ τὴν ὁδὸν ἐδέπεσεν· ἵν' οὖν μὴ ἀτελὴς γένοιτο, ἀλλὰ διαπερανάμενοι οὕτως ἐσίοιμεν, στάντες ἐν τῷ προθύρῳ διελεγόμεθα, ἕως συνωμολογήσαμεν ἀλλήλοις.

(3) ὧν ἐὰν μὴ βελτίω ἔχωμεν λέγειν ἐν τῷ παρόντι, εὖ ἴσθι ὅτι οὐ μή σοι ξυγχωρήσω, οὐδ' ἂν πλείω τῶν νῦν παρόντων ἡ τῶν πολλῶν δύναμις ὥσπερ παῖδας ἡμᾶς μορμολύττηται, δεσμοὺς καὶ θανάτους ἐπιπέμπουσα καὶ χρημάτων ἀφαιρέσεις.

(4) Οὐκοῦν ἀνάγκη, ἔφη, ἐκ πάντων τούτων παρίστασθαι, δόξαν τοιάνδε τινὰ τοῖς γνησίως φιλοσόφοις, ὥστε καὶ πρὸς ἀλλήλους τοιαῦτ' ἄττα λέγειν, ὅτι Κινδυνεύει τοι ὥσπερ ἀτραπός τις ἡμᾶς ἐκφέρειν μετὰ τοῦ λόγου ἐν τῇ σκέψει, ὅτι, ἕως ἂν τὸ σῶμα ἔχωμεν καὶ ξυμπεφυρμένη ᾖ ἡμῶν ἡ ψυχὴ μετὰ τοῦ τοιούτου κακοῦ, οὐ μή ποτε κτησώμεθα ἱκανῶς οὗ ἐπιθυμοῦμεν· φαμὲν δὲ τοῦτο εἶναι τὸ ἀληθές.

(5) αἱ δὲ δὴ ἄλλαι γλιχόμεναι μὲν ἅπασαι τοῦ ἄνω ἔπονται, ἀδυνατοῦσαι δὲ ὑποβρύχιαι ξυμπεριφέρονται, πατοῦσαι ἀλλήλας καὶ ἐπιβάλλουσαι, ἑτέρα πρὸ τῆς ἑτέρας πειρωμένη γενέσθαι. θόρυβος οὖν καὶ ἅμιλλα καὶ ἰδρὼς ἔσχατος γίγνεται. οὗ δὴ κακίᾳ ἡνιόχων πολλαὶ μὲν χωλεύονται, πολλαὶ δὲ πολλὰ πτερὰ θραύονται· πᾶσαι δέ, πολὺν ἔχουσαι πόνον, ἀτελεῖς τῆς τοῦ ὄντος θέας ἀπέρχονται, καὶ ἀπελθοῦσαι τροφῇ δοξαστῇ χρῶνται.

LATIN BOOKS.

MONDAY, SEPT. 17TH:—MORNING, 9 TO 12.

1. Translate:

(*a*) Quid tibi visa Chios, Bullati, notaque Lesbos,
quid concinna Samos, quid Croesi regia Sardis,
Smyrna quid et Colophon? *Maiora minorane fama?*
cunctane prae campo et Tiberino flumine sordent?

A note on the words in italics.

(*b*) Non eadem miramur; eo disconvenit inter
meque et te: nam, quae deserta et inhospita tesqua
credis, amoena vocat, mecum qui sentit, et odit,
quae tu pulcra putas.

To whom is this addressed?

(*c*) Qui melior servo qui liberior sit avarus
non video.

(*d*) Hoc quoque te manet, ut pueros elementa docentem
occupet extremis in vicis balba senectus.

2 Namque avaritia fidem, probitatem, ceterasque artes bonas subvertit, pro his superbiam, crudelitatem, deos negligere, omnia venalia habere edocuit. Ambitio multos mortales falsos fieri subegit: aliud clausum in pectore, aliud in lingua promptum habere: amicitias inimicitiasque non ex re sed ex commodo aestumare; magisque vultum quam ingenium bonum habere. Haec primo paullatim crescere, interdum vindicari: post, ubi contagio quasi pestilentia invasit, civitas immutata, imperium ex iustissimo atque optimo crudele intolerandumque factum.

Name any peculiarities of the style or Latinity of Sallust. Quote any references to him in later writers, and state what was the opinion entertained of him as a historian.

3. Translate:

Quibuscum me, iudices, pugnantem meo more pristino non videbitis: non quo mihi fas sit quidquam defugere, quod salus Plancii postulet: sed quia neque necesse est, me id persequi vos, quod vos mente videatis; et quod ita de me meriti sunt illi ipsi, quos ego testes video paratos, ut eorum reprehensionem vos vestrae prudentiae assumere, meae modestiae remittere debeatis. Illud unum vos magno

opere oro atque obsecro, iudices, cum huius, quem defendo, tum communis periculi caussa, ne fictis auditionibus, ne disseminato dispersoque sermoni fortunas innocentium subiiciendas putetis.

What mention is made in the Pro Plancio of Cispius, C. Vergilius, Rhodes, M. Drusus, Gabii, Ti Coruncanius ?

MONDAY, SEPT. 17TH:—2 TO 5 P.M.

FOR LATIN PROSE.

Fulgentius reigned in the city of Rome, the which in marvellous manner loved his people, in so much that he made to be cried through all his Empire, that all men should come of every nation at a certain day to his palace, and whatsoever they asked, all should have after their estate. Dukes and other great lords, when they heard this, were right glad and came in a great multitude ; and each by himself put forth his petition and had it. And so all the Empire was divided among them ; and each man joyed and went home to his own. After this, poor men and simple went together, and said, "A common cry is made that all shall come to the Emperor's palace, no person out taken. Rich men and mighty men have come afore us and have received benefice, after their will, and therefore go we now and we shall have goods of the Emperor."

Gesta Romanorum.

FOR UNSEEN TRANSLATION.

1. News of the battle of Metaurus received at Rome.

Nunquam per omnes dies, ex quo Claudium consulem profectum fama adtulit, ab orto sole ad occidentem aut senator quisquam a curia atque ab magistratibus abscessit aut populus e foro : matronae, quia nihil in ipsis opis erat, in preces obtestationesque versae per omnia delubra vagae supplices votisque fatigare deos. Tam sollicitae ac suspensae civitati fama incerta primo accidit, duos Narnienses equites in castra, quae in faucibus Umbriae opposita erant, venisse ex proelio nuntiantes caesos hostes. Et primo magis auribus quam animis id acceptum erat ut maius laetiusque quam quod mente capere aut satis credere possent ; et ipsa celeritas fidem impediebat, quod biduo ante pugnatum dicebatur.

LIVY, XXVII., 50.

2. The shade of Cornelia addresses her husband.

Nunc tibi commendo communia pignora, natos,
haec cura et cineri spirat inusta meo.
fungere maternis vicibus, pater : illa meorum
omnis erit collo turba ferenda tuo.
oscula cum dederis tua flentibus, adice matris :
tota domus coepit nunc onus esse tuum.
et si quid doliturus eris, sine testibus illis :
cum venient, siccis oscula falle genis :
sat tibi sint noctes quas de me, Paulle, fatiges,
somniaque in faciem credita saepe meam.
atque ubi secreto nostra ad simulacra loqueris,
ut responsurae singula verba iace.

PROP. V., II., 73-84.

ROMAN HISTORY.

TUESDAY. SEPT. 18TH :—MORNING, 9 TO 12.

(Answers to Roman and Greek History to be shewn up in separate books.)

(Where the letters a and b accompany a question, only one part to be attempted.)

1. Give an account of the various nationalities of early Italy.

2. Explain the nature and functions of the comitia centuriata, the concilium tributum, praetors, aediles, senate.

3. A brief account of the events between the capture of Rome by the Gauls and the advent of Pyrrhus.

4. The political position of Saturninus, M Livius Drusus, Cinna, Pompey.

5. The constitution of Sulla.

6. (*a*) Events at Rome from 53 to the outbreak of civil war.

(*b*) A short account of the period between the death of Caesar and that of Cicero.

7. (*a*) An account of the Roman judicial system.

(*b*) The organisation of the Roman army.

8. Criticise the political life of *either* Caesar *or* Cicero.

GREEK HISTORY.

1. Give an account of the battle of Œnophyta, and show its bearing on subsequent events.

2. Write a short life of Alcibiades.

3. Give some account of the "Tribute" paid to Athens, explaining its origin, the method of its collection and the changes in total a mount at various dates.

4. Give a brief account of the modifications in the Athenian constitution due to Cleisthenes; what were the chief changes after this?

5. With what events do you associate the following names of persons and places:—Dionysius, of Phocaea; Brasidas, Gongylus, Naxos, Melos, Callicratidas, Histiaeus, Mantinea? Give dates.

6. Explain, with a sketch map, the importance to Athens, commercial or strategic, or both, of Corcyra, Nanpactus, the Chersonese-Amphipolis, Nisaea.

ENGLISH LITERATURE.

WEDNESDAY, SEPT. 19TH:—9 TO 12.

(*Write the answers to A and B in separate books.*)

A. SHAKSPERE: *Tempest.*

1. What do you know of the origin of this play?

2. Discuss the character of Gonzalo, *or* of Miranda.

3. Narrate the events contained in Act V.

4. Give, from *The Tempest*, examples of the following:—Shakspere's aptness in the use of descriptive epithet, irregularity of metre, grammatical liberties, studied rhythmical effects.

5. What *internal* evidence may be adduced in support of the proof that *The Tempest* is a late play?

B. MILTON:—*Paradise Lost, Bks. I and II.*

1. Indicate the sources from which Milton received suggestions for the character of Satan.

2. Illustrate from the Books studied (*a*) Milton's learning, (*b*) the power and variety of his blank verse.

3. Give some account of the Council of Fallen Angels.

4. Explain the following:—"the Aonian mount," "Gorgons, and Hydras, and Chimaeras dire;" "Typhœan rage;" "Baalim and Ashtaroth;" "Thammuz came next behind;" "Àbbana and Pharphar."

FRENCH.

SEPTEMBRE, 1900:—TROIS HEURES.

1. Traduire en français:—

(*a*) Dean Swift, the celebrated author of "Gulliver's Travels," had more ability than generosity. He seldom gave anything to the servants of those who sent him presents; but once he received a good lesson from a page who often brought him fish and game. One day the page arrived with a large basket of fruit, partridges, and trout. He knocked at the door, and the dean, who happened to be there, opened it himself. "Here" said the boy bluntly, "my master has sent you these things." The dean, annoyed at the page's rudeness, said to him, "Come here, my boy, and I will teach you how to deliver a message more politely. You shall be Dean Swift, and I will be the page." Then, taking off his hat with much politeness, he said to the boy, "Sir, my master sends you a little present, and begs you to do him the honour of accepting it." "Very well," replied the boy, "tell him that I am much obliged to him, and there is half a crown for yourself."

(*b*) On a small island in the Rhine, the traveller sees the gloomy ruins of an old castle, and he will hear a strange legend of the castle from the inhabitants of the neighbourhood. Long ago this country was infested with rats, gigantic and daring. The bishop of the neighbourhood offended the king of the rats, and was driven from his palace by the enraged animals. He reached the bank of the river pursued by his enemies, and swam to the friendly island. But the rats followed the unhappy (man), and he was obliged to climb the ruined wall of the castle. Eager for their prey, the rats climbed in pursuit. They seized the unhappy man, whose whitened bones still lie at the foot of the tower.

2. Traduire en anglais:—

Le théâtre est un point d'optique. Tout ce qui existe dans le monde, dans l'histoire, dans la vie, dans l'homme, tout doit et peut

s'y réfléchir, mais sous la baguette magique de l'art L'art feuillette les siècles, feuillette la nature, interroge les chroniques, s'étudie à reproduire la réalité des faits, surtout celle des mœurs et des caractères, bien moins léguée au doute et à la contradiction que les faits, restaure ce que les annalistes ont tronqué, harmonise ce qu'ils ont dépouillé, devine leurs omissions et les répare, comble leurs lacunes par des imaginations qui aient la couleur du temps, groupe ce qu'ils ont laissé épars, rétablit le jeu des fils de la providence sous les marionnettes humaines, revêt le tout d'une forme poétique et naturelle à la fois, et lui donne cette vie de vérité et de saillie qui enfante l'illusion, ce prestige de réalité qui passionne le spectateur, et le poète le premier, car le poète est de bonne foi. Ainsi le but de l'art est presque divin : ressusciter, s'il fait l'histoire ; créer, s'il fait de la poésie.

3. Quel est selon M. Lanson, le système philosophique de Vigny dans ses romans, drames et poèmes ?

4. Traiter brièvement, d'après M. Lanson, deux des sujets suivants :

Les caractères généraux de la littérature du XVII et du XVIII siècle.

Contraste et continuité des deux époques.

Deux moments principaux dans le XVIII siècle.

Théorie du drame romantique.

Victor Hugo et son œuvre.

FRENCH.

LE 20 SEPTEMBRE 1900 :—DE 9 HRES. À MIDI.

1. (*a*) Montrer l'importance de la *Préface de Cromwell* au point de vue littéraire.

(*b*) Décrire les différents caractères de la poésie correspondant aux trois grands âges du monde,—les temps primitifs, les temps antiques, les temps modernes.

(*c*) Reproduire brièvement ce que dit Victor Hugo dans cette préface sur deux des sujets suivants :

Le rôle et l'influence du grotesque ou du laid.
Les unités.
Les règles.
L'imitation des modèles.

2. (*a*) Quels droits *Brittanicus* et *Néron* avaient-ils chacun au trône ?

(*b*) Raconter comment Néron supplanta Britannicus.

(*c*) Esquisser le caractère de Burrhus ; sa mission à la cour.

3. (*a*) Quels sont les travers que Molière expose dans le *Misanthrope* ?

(*b*) Faire connaître le dénouement du Misanthrope.

Rendre en anglais :

(*c*) Votre chaleur pour lui tombe en vous séparant.

(*d*) L'ami du genre humain n'est pas du tout mon fait.

(*e*) Qu'à son âge il sied mal de faire la jolie !

(*f*) Mes yeux sont trop blessés, et la cour et la ville
Ne m'offrent rien qu'objets à m'échauffer la bile.

(*g*) Je n'y puis plus tenir, j'enrage, et mon dessein
est de rompre en visière à tout le genre humain.

(*h*) Il est vrai que votre ardeur pour moi est sans seconde.

(*i*) Voulez-vous qu'avec lui je me fasse une affaire ?

(*j*) Ces conversations ne font que m'ennuyer,
Et c'est trop que vouloir me les faire essuyer.

(*k*) Dans les propos qu'il tient on ne voit jamais goutte.

(*l*) Il est fort peu d'emplois dont je ne sois en passe.

(*i*) Et puis-je mais des soins qu'on ne va pas vous rendre ?

(*m*) Notre grand flandrin de vicomte est un homme qui ne saurait me revenir.

4. (*a*) Esquisser brièvement le rôle de deux des personnages suivants :
Richelieu.
De Thou.
Joseph,
Louis XIII.
tel que dans *Cinq-Mars*

(*b*) Faire une appréciation sommaire de cet ouvrage au point de vue de la forme et du fond.

GERMAN.

TRANSLATION (*mainly at sight*).

SEPT., 1900:—THREE HOURS.

1. Translate into English (*at sight*):—

(*a*) Riehl, *Der Fluch der Schönheit*, Ch. III, first two paragraphs.

(*b*) Die Gestalt, die vor dem Schreibtisch steht und mit halblauter Stimme

ein noch nasses Manuskript überliest, hat von dem hergebrachten Äußern eines Blaustrumpfes nichts weiter an sich, als jenen eigentümlichen seherhaften Ausdruck im Auge. Fräulein Thusnelda ist groß und ziemlich stark. Ihr rundes, von Gesundheit blühendes Gesicht wird von dicken, blonden Strähnen umrahmt, welche im Nacken in einen kunstlosen Knoten geschlungen sind. Bekleidet ist die Dame mit einem bis an den Hals geschlossenen Tuchkleid von dunkler Farbe; sie trägt keinerlei Schmuck, nicht einmal eine Schleife von lebhafter Farbe oder etwas dergleichen.

(*c*) Der bekannte Herr Hunnemann war mir in allen Dingen dienst- und hülfreich; er war mein Rat, mein Führer, mein Dolmetscher. Er widmete meinem Dienste einen großen Teil seiner kostbaren Zeit. Er half mir alles, was mir auf der Reise an Instrumenten und Büchern gefehlt hatte, nachträglich zusammenbringen, um mich zu der Heimfahrt so auszurüsten, wie ich es zur Ausfahrt hätte sein sollen. — Hätte wohl derjenige, der darüber lächelt, es viel klüger gemacht? Ich meinerseits bin bei jedem neuen Kapitel meines Lebens, das ich, so gut es gehen will, ablebe, bescheiden darauf gefaßt, daß es mir erst am Ende die Weisheit bringen werde, deren ich gleich zu Anfang bedurft hätte, und daß ich auf meinem Sterbekissen die versäumte Weisheit meines Lebens finden werde. — Und ich bin ohne Reue, weil ich nicht wissentlich und mit Willen gefehlt; und weil ich die Meinung habe, daß es anderen nicht viel anders geht als mir.

2. Translate into German (*at sight*):—

(*a*) I know a bridge, not built of wood and stone, nor set up by man. God has created it out of water and without tools. Sometimes it is finished very quickly, in a night even, but it can vanish just as quickly. It cannot bear the sun and the mild air. Its splendour disappears as soon as the sun shines warm on it. It lasts longest in the cold of winter. Then it grows thicker and thicker and stronger and stronger. When one drives over it, one hears it sometimes cracking, but one does not need to be alarmed at that.

(*b*) Xanthippe, the wife of Socrates, was often in a bad humour and quarrelsome. One day she grew very angry and gave her husband a thorough scolding (schalten auf). But Socrates remained quite calm. As she grew more and more violent, he arose and was about to depart. This action made her still more bitter. She seized a vessel full of water and poured it through the window on his head. "I thought so," said Socrates. "Rain is accustomed to follow after a thunderstorm."

(*c*) A man was to put a wolf, a goat and a cabbage across a river in a skiff. But the skiff was so small that it could only contain one of these objects. Which one should the man take across first, if during the passage the wolf was not to eat the goat, nor the latter the cabbage ?

(*d*) After his conversation with the strange soldier Amos hastily left the inn. He had not gone far when he noticed that he was being pursued; and as he was unable to run very fast on account of his wounded leg, the crowd soon overtook him. He was told that he must give up all papers which he might have with him ; and when he declared that he had nothing of value in his possession, they took him into the forest on the banks of the Lahn and began to search him. Thereupon Amos, seeing that all hope was lost, suddenly drew the little bag from his pocket and flung it far out into the river.

GERMAN.

GRAMMAR AND TRANSLATION OF PRESCRIBED TEXTS.

SEPT. 20TH, 1900—AFTERNOON, 2 TO 5.

1. Translate into English :—

(*a*) Goethe's *Egmont*, Act I, Scene I, first twenty-five lines.

(*b*) Schiller's *Egmont*, Egmont's letter to the king.

(*c*) Immermann's *Oberhof*, Ch. V., first paragraph.

(*d*) *Dichtung und Wahrheit*, p. 77, l. 30, to p. 78, l. 13. (Heath's edition).

(*e*) *Die Braut von Messina*, the third paragraph.

2. Comment on (*a*) the suffix in such verbs as *buchstabiren, schattiren*, (*b*) the adverbs *anfangs, nachts, eilends, am meisten*, (*c*) the auxiliary in *Fels und Meer wird fortgerissen*, (*d*) the verb in *als Christus auferstand*, (*e*) the suffixes of *Tugendhaftigkeit*, (*f*) the pronoun in *such' Er den redlichen Gewinn*. (*g*) Give the divisions of the Germanic branch of languages. (*h*) Give an analysis of the plot of *Die Braut von Messina*, *or* Give a brief account of Goethe's first ten years in Weimar.

3. Form from the words *greifen, stellen, führen, sanft, gross, rot, Volk, Schuld, Geist*, derived verbs which correspond to the

English *to comprehend, appoint, lead astray, appease, enlarge, blush, depopulate, accuse, inspire.*

4. Translate:—*Es begab sich. Er begab sich nach Hause. Er hat sich seiner Ansprüche begeben.*

5. Turn into *oratio obliqua*:—Ich sagte ihm, "Du sollst dir nur nicht einbilden, dach ich dich ungestraft werde bleiben lassen. Meinst du denn, du könnest mich zum Besten haben."

6. Translate into German:—

(*a*) The citizens, having had no food for three days, scarcely defended themselves.

(*b*) Having written my letter, I took a walk into the country.

(*c*) The man's having poor clothes made them think him a beggar

(*d*) Having no money is not a sin.

CHEMISTRY.

Examiner,.....J. WALLACE WALKER, M.A. Ph.D.

NOTE.—Equations and formulae must be given wherever possible.

1. How can the law of Avogadro-Gerhardt be employed to determine the true atomic weight of some non-volatile elements? Give examples.

2. Describe fully the phenomena observed when carbonic acid gas is subjected to a continually increasing pressure and lowering temperature.

3. What is meant by the basicity of an acid? Describe the salts of four acids which illustrate your answer.

4. Describe the origin or methods of manufacture of the chlorine compounds which find a wide application in various industries.

5. Give a short account of the element germanium, and discuss its position in the periodic table.

6. Point out any analogies which exist between the compounds of tin and of lead.

7. Describe the method of isolation and the chemical properties of fluorine.

8. Give a short account of the chemistry of iron, and state the peculiarities of the metals belonging to the same group.

9. What are the different modifications of sulphur, now are they prepared, and in what respects do they differ from each other?

FACULTY OF APPLIED SCIENCE.

EXHIBITION AND PRIZE EXAMINATIONS.

EXHIBITION AND PRIZE EXAMINATIONS.

SECOND YEAR.

MATHEMATICS.

SATURDAY, OCTOBER 6TH:—MORNING, 9 TO 12.

Examiner, ... R. S. LEA, MA.E.

1. $A\,B\,C$ is an isosceles triangle of which A is the vertex. AB, AC are bisected in D and E respectively. BE, CD intersect in F. Show that the triangle ADE is equal to three times the triangle DEF.

2. Divide a straight line into two parts so that the rectangle contained by the parts may be equal to a given area.
Show clearly when this problem is impossible.

3. A quadrilateral inscribed in a circle has one side fixed and the opposite of constant length. Find the locus of the intersection of the diagonals.

4. From a given point without a plane draw a normal to the plane.

5. Prove that the circle on any focal chord of a parabola as diameter touches the directrix.

6. Deduce a formula for finding the sum of an infinite number of terms of a geometrical progression.
If the common ratio is less than $\frac{1}{2}$, show that each term will be greater than the sum of all the terms that follow it.

7. Show that the middle term of $(1 + x)^{2n}$

is $\dfrac{1.3.5....(2n-1)}{\lfloor n} 2^n x^n$.

8. In any plane triangle ABC

(1) $\sin A + \sin B - \sin C = 4 \sin \dfrac{A}{2} \sin \dfrac{B}{2} \cos \dfrac{C}{2}$

(2) $c = (a - b) \cos \frac{1}{2} C \operatorname{cosec} \frac{1}{2} (A - B)$.

9. In any spherical triangle

(1) $\cos a = \dfrac{\cos A + \cos B \cos C}{\sin B \sin C}$

(2) $\cos \dfrac{a}{2} = \sqrt{\dfrac{\cos (S - B) \cos (S - C)}{\sin B \sin C}}$

(3) The three angles are together greater than two and less than six right angles.

10. A rod of uniform thickness has one-half of its length composed of one metal and the other half composed of a different metal. The rod balances about a point distant one-third of its whole length from one end. Compare the weight of equal quantities of the metals.

11. A cylinder open at the top is inverted and immersed vertically in water. Find the depth of the vessel under water when half full.

THIRD AND FOURTH YEARS.

MATHEMATICS.

SATURDAY, OCTOBER 6TH :—MORNING, 9 TO 12.

Examiner,.....G. H. CHANDLER, M.A.

*1. Find an expression for the area of a triangle in terms of the co-ordinates of the angular points of the triangle.

*2. Find the equations of the straight lines which bisect the angles between two given straight lines.

3. One side of a triangle is fixed in magnitude and position, a second side in magnitude only; find the locus of the middle point of the third side.

4. The equation of the normal of a parabola in terms of its slope is $y = mx - mp\ (m^2 + 2)$.

5. The length of the perpendicular from the origin to the tangent at (x, y) on the curve $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$ is $\sqrt[3]{axy}$.

6. If $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ show that

(1) $\dfrac{dy}{dx} = -\dfrac{b^2 x}{a^2 y}$, $\dfrac{d^2 y}{dx^2} = -\dfrac{b^4}{a^2 y^3}$.

* For Third Year only.

7. Find the radius of curvature at any point of an ellipse.

8. Integrate (1) $(\log x)^n \frac{dx}{x}$, (2) $\tan^3 \theta \, d\theta$, (3) $\frac{dx}{x\sqrt{4x^2-9}}$.

†9. Integrate $\sin^n\theta \, d\theta$, and find the value of the integral between the limits 0 and $\frac{1}{2}\pi$, n being a positive integer.

†10. Show that

$$\sin^{-1} x = x + \frac{1}{2}\frac{x^3}{3} + \frac{1.3}{2.4}\frac{x^5}{5} + \ldots$$

and deduce the value of π.

11. The moment of inertia of a circular annulus about a diameter is $\frac{1}{4} m (R^2 + r^2)$.

*12. A train runs round a level curve of 3025 feet radius at 15 miles per hour. Show that the deflection from the vertical of a plumb-line suspended in a car is $\tan^{-1}(\frac{1}{200})$.

*13. Show that the elevation of a projectile to attain a range R with initial speed u is given by $\sin 2\theta = g R / u^2$.

14. A point has two simultaneous simple harmonic motions in directions at right angles to each other, amplitudes and phases being the same but the periods being as 1 to 2. Find the path.

†15. A circular disk of radius r rolls down from an equal fixed disk under the action of gravity. Show that the velocity acquired when the line joining their centres makes an angle θ with the vertical is found from

$$3v^2 = 8gr(1 - \cos\theta).$$

†16. The efficiency of a screw is a maximum when the pitch angle $= \frac{1}{4}(\pi - 2\phi)$, where ϕ is the friction angle.

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* For Third Year only.
† " Fourth " "

EXAMINATION ON THE SUMMER READINGS IN ENGLISH.

WEDNESDAY, OCT. 10TH:—2 TO 5 P.M.

(Write the answers to A, B, C and D in separate books.)

A

The Tempest.

1. Briefly connect Shakspere's name with the following places and persons: the Globe, Mary Arden, New Place, the Earl of Southampton, Richard Burbage, Blackfriars, Charlecote. Assign events to the dates 1582, 1623. What is meant by a Shakespere "quarto"?

2. Shakespere makes steady use of Nature in the Tempest. Illustrate.

3. What elements of common humanity enter into Caliban's character? Give precise illustrations.

4. Assign the following lines to their speakers and places:

(*a*) I flamed amazement.

(*b*) Letters should not be known.

(*c*) misery acquaints a man with strange bed-fellows.

(*d*) it did bass my trespass

(*e*) Hail, many-colour'd messenger.

5. Give in prose the exact meaning of:

Seb. But for your conscience?
Ant. Ay, sir, where lies that? if 'twere a kibe,
'Twould put me to my slipper: but I feel not
This deity in my bosom: twenty consciences,
That stand 'twixt me and Milan, candied be they,
And melt ere they molest.

B

Waverley.

1. Write an outline of the Life of Scott.

2. Discuss Waverley as a hero.

3. Compare the characters of Flora MacIvor and Rose Bradwardine.

4. Describe in your own words the scene at the Waterfall when Flora MacIvor sang to Waverley, *or*, that in the Court room when Evan Maccombich pledged the clansmen for the chief.

C

The Vicar of Wakefield.

1. What do you consider the distinctive merits of The Vicar of Wakefield as a work of fiction?

2. Narrate the incident of Moses and the spectacles.

3. Compare the characters of the Vicar's daughters and show how far they reflect those of their parents.

4. Under what character in the book does Goldsmith recount his own experience, and on what occasion.

D

Addison: *Selected Essays.*

1. Write short notes on: The Everlasting Club, Addison's opinions concerning witchcraft, the character and disposition of the Spectator London cries.

2. Give some idea of Addison's literary employment of allegory in the periodical called The Spectator. Support your discussion with concrete illustrations.

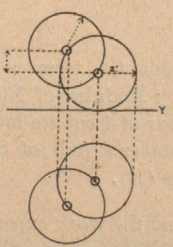
3. What do you consider to be the specific qualities of Addison's literary style in these papers?

SCOTT EXHIBITION EXAMINATION.

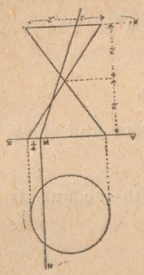
DESCRIPTIVE GEOMETRY.

OCTOBER 9.

1. Two spheres are situated as in the diagram; find the line of penetration in plan and elevation; also find the horizontal trace of the cylinder which contains the two spheres.



2. Find the section caused by the plane *LMN* cutting the cone as in the diagram.



3. Three points *A*, *B* and *C* are so situated that their plans being joined form an equilateral triangle of one inch side and *a c* makes an angle of 30° with the *xy*. *a'*, *b'* and *c'* are respectively 1·5″, 1·0″ and 0·5″ above the H.P. Find by rabatment the true form of the triangle.

(*a*) Find also the plan and elevation of the circle containing the points.

4. Place an octahedron of 1½″ edge in position so that one of its diagonals is at 50° to the H.P. and 15° to the V.P. Let a plane perpendicular to the V.P. and inclined at 70° to the H.P. pass through the solid ¼″ from its centre. Show the *plan* of the section.

5. Show the true form of the section (Ques. 4), also show the development of the surface of the solid marking the section lines caused by the inclined plane.

BRITISH ASSOCIATION EXHIBITION.

THEORY OF STRUCTURES.

Examiners, ... { HENRY T. BOVEY, LL.D., M.INST. C.E.
E. G. COKER, M.SC., A.M.INST.C.E.

NOTE.—Candidates in the Supplemental Examination may attempt seven questions in Section I *only*.

Candidates for the Exhibition may attempt any questions in Section II and Questions 6, 7, 8 and 9 in Section I.

Section I.

1. Define the terms "Stress," "Strain," "Elasticity," "Elastic Limit," "Modulus of Elasticity."

A bar of 4 square inches section and 10 feet long stretches 0.09 inches under a pull of 81,000 pounds. Find the value of Young's Modulus (E).

2. Find the work expended in raising earth to the surface dug out from a cylindrical shaft 30 feet deep and 8 feet diameter. Weight of material 115 lbs. per cubic foot.

3. Prove the formula

$$\frac{p}{y} = \frac{M}{I} = \frac{E}{R}$$

for beams subjected to bending.

Find the moment of resistance of an I section, the flanges of which are $4'' \times 5/8''$ and the web $6'' \times 1/2''$, the maximum allowable stress being 10,000 lbs. per square inch.

4. A cylindrical boiler, 4 feet diameter, with flat ends, is made of plates 3/8" thick. Calculate the circumferential and longitudinal stresses in the metal for a boiler pressure of 80 lbs. per square inch.

5. Deduce an expression for the strength of a long thin pillar having pin ends.

6. Compare the strengths of a solid W.I. shaft and a hollow steel shaft of the same external diameter, assuming the internal diameter of the hollow shaft to be 5/8ths, the exterior and the coefficient of strength for steel $1\frac{1}{3}$ times that for iron.

7. A round shaft is subjected to a bending moment M and a twisting moment T; show that the maximum stress is equal to that due to a twisting of value $M + M + T$.

8. A steel tie-bar of $1\frac{1}{2}''$ diameter and 5 feet long is stressed by a pull of 8,000 pounds, and in addition there is a weight hanging at the centre of 400 pounds. Determine the maximum and minimum stresses in the bar at the central section.

9. Obtain expressions for the twisting moment and angle of twist of a circular shaft in the forms

$$T_m = + qr^3$$

and angle of twist $\underline{i} = \frac{2}{\pi c} \frac{t}{r^4} T_m$

Section II.

10. Obtain the Rankine-Gordon formula for the strength of a pillar in the form

$$\frac{W}{A} = \frac{f}{1 + a \frac{l^2}{R^2}}$$

and state what assumption is made in order to obtain the formula.

Show that a is necessarily a quantity varying according to the fixing of the ends.

11. Having given the principal stresses at a point in the general case of stress in two dimensions, show that the stress across any plane through the point is represented by the radius vector of an ellipse.

At a point within a solid the principal stresses are tensions of 230 and 170 pounds per square inch. Find the stress on a plane inclined at 30° to the plane of greatest principal stress.

12. Show that M 1 at any point of a loaded beam, the relation between the bending moment (M), the shear (S) and the load (w) is expressed l y the formula

$$\frac{d^2M}{dx^2} = \frac{dS}{dx} =$$

13. Find the deflection at the middle of the length of a beam supported at both ends, when

(a) loaded with a concentrated load at the centre;

(b) the same load uniformly distributed.

Sessional Examinations

FACULTY OF ARTS

1901.

GREEK.

FIRST YEAR.

GREEK AUTHORS.

TUESDAY, APRIL 2ND :—MORNING, 9 TO 12.

(Note.—A, B and C to be shewn up in different books).

A.— HOMER, ODYSSEY XXI.

1. Translate with notes on words and phrase underlined :—

(i) ἦ δ' ὅτε δὴ θάλαμον τὸν ἀφίκετο δῖα γυναικῶν
οὐδόν τε δρύινον προσεβήσετο, τόν ποτε τέκτων
ξέσσεν ἐπισταμένως καὶ ἐπὶ στάθμην ἴθυνεν,
ἐν δὲ σταθμοὺς ἄρσε, θύρας δ' ἐπέθηκε φαεινάς·
αὐτίκ' ἄφ' ἦ γ' ἱμάντα θοῶς ἀπέλυσε κορώνης,
ἐν δὲ κληῖδ' ἧκε, θυρέων δ' ἀνέκοπτεν ὀχῆας
ἄντα τιτυσκομένη.

(ii) εἰ δ' ἄγε δὴ καὶ σῆμα ἀριφραδὲς ἄλλο τι δείξω,
ὄφρα μ' ἐὺ γνῶτον πιστωθῆτόν τ' ἐνὶ θυμῷ,
οὐλήν, τήν ποτέ με σὺς ἤλασε λευκῷ ὀδόντι
Παρνησόνδ' ἐλθόντα σὺν υἱάσιν Αὐτολύκοιο.
ὡς εἰπὼν ῥάκεα μεγάλης ἀποέργαθεν οὐλῆς.

(iii) μῆτερ ἐμή, τόξον μὲν Ἀχαιῶν οὔ τις ἐμεῖο
κρείσσων ὥ κ' ἐθέλω δόμεναί τε καὶ ἀρνήσασθαι,
οὔθ' ὅσσοι κραναὴν Ἰθάκην κάτα κοιρανέουσιν,
οὔθ' ὅσσοι νήσοισι πρὸς Ἤλιδος ἱπποβότοιο.
τῶν οὔ τίς μ' ἀέκοντα βιήσεται, αἴ κ' ἐθέλωμι
καὶ καθάπαξ ξείνῳ δόμεναι τάδε τόξα φέρεσθαι.

(iv) ὣς ἄρ' ἔφαν μνηστῆρες· ἀτὰρ πολύμητις Ὀδυσσεύς,
αὐτίκ' ἐπεὶ μέγα τόξον ἐβάστασε καὶ ἴδε πάντῃ,

ὡς ὅτ' ἀνὴρ φόρμιγγος ἐπιστάμενος καὶ ἀοιδῆς
ῥηιδίως ἐτάνυσσε νέῳ περὶ κόλλοπι χορδήν,
ἄψας ἀμφοτέρωθεν ἐυστρεφὲς ἔντερον οἰός·
ὣς ἄρ' ἄτερ σπουδῆς τάνυσεν μέγα τόξον Ὀδυσσεύς.

2. Explain the forms πέφνε, κέσκετο, ἔσχεθε, ἤλυθον, ἔολπε.

3. Explain the terms "Comitative Dative," "Accusativus de quo," "Shortvowel Subjunctive." and give an account of the uses of the Ablatival Genitive.

B.—EURIPIDES, HERAKLEIDAI.

I. Translate with notes:—

(1) ὧν ἕκατι τέρμονας
κλεινῶν Ἀθηνῶν τήνδ' ἀφικόμεσθ' ὁδόν.
δυοῖν γερόντοιν δὲ στρατηγεῖται φυγή·
ἐγὼ μὲν ἀμφὶ τοῖσδε καλχαίνων τέκνοις,
ἡ δ' αὖ τὸ θῆλυ παιδὸς Ἀλκμήνης γένος,
ἔσωθε ναοῦ τοῦδ' ὑπηγκαλισμένη,
σῴζει· νέας γὰρ παρθένους αἰδούμεθα
ὄχλῳ πελάζειν κἀπιβωμιοστατεῖν.

(2) ᾤκτειρ' ἀκούσας τούσδε συμφορᾶς, ἄναξ.
τὴν δ' εὐγένειαν τῆς τύχης νικωμένην
νῦν δὴ μάλιστ' ἐσεῖδον· οἵδε γὰρ πατρὸς
ἐσθλοῦ γεγῶτες δυστυχοῦσ' ἀναξίως.

(3) ἐγώ νιν αὐτὸς εἶδον. ἄνδρα γὰρ χρεὼν,
ὅστις στρατηγεῖν φησ' ἐπίστασθαι καλῶς,
οὐκ ἀγγέλοισι τοὺς ἐναντίους ὁρᾶν.

(4) ΑΛ. τί γὰρ βοὴν ἔστησας ἄγγελον φόβου;
ΙΟ. σὲ, πρόσθε ναοῦ τοῦδ' ὅπως βαίης πέλας.

(5) τῇ δὲ νῦν τύχῃ
βροτοῖς ἅπασι λαμπρὰ κηρύσσει μαθεῖν,
τὸν εὐτυχεῖν δοκοῦντα μὴ ζηλοῦν, πρὶν ἂν
θανόντ' ἴδῃ τις· ὡς ἐφήμεροι τύχαι.

(6) ἄλλως ἄρ' αὐτὸν αἰχμάλωτον εἴλομεν.
εἴργει δὲ δὴ τίς τόνδε μὴ θανεῖν νόμος ;

(7) χρησμῷ παλαιῷ Λοξίου δωρήσομαι,
ὃς ὠφελήσει μείζον' ἢ δοκεῖν χρόνῳ.

II. Translate into English Blank Verse or elevated Prose :—

MA. οὐκ ἂν θάνοιμι τῇ τύχῃ λαχοῦσ' ἐγώ·
χάρις γὰρ οὐ πρόσεστι· μὴ λέξῃς, γέρον.
ἀλλ' εἰ μὲν ἐνδέχεσθε, καὶ βούλεσθέ μοι
χρῆσθαι προθύμῳ, τὴν ἐμὴν ψυχὴν ἐγὼ
δίδωμ' ἑκοῦσα τοῖσδ', ἀναγκασθεῖσα δ' οὔ.

IO. φεῦ.
ὅδ' αὖ λόγος σοι τοῦ πρὶν εὐγενέστερος·
κἀκεῖνος ἦν ἄριστος, ἀλλ' ὑπερφέρεις
τόλμῃ τε τόλμαν καὶ λόγῳ χρηστῷ λόγον.
οὐ μὴν κελεύω γ', οὐδ' ἀπεννέπω, τέκνον,
θνῄσκειν σ'· ἀδελφοὺς δ' ὠφελεῖς θανοῦσα σούς.

MA. σοφῶς κελεύεις· μὴ τρέσῃς μιάσματος
τοὐμοῦ μετασχεῖν, ἀλλ' ἐλευθέρως θάνω.
ἔπου δὲ, πρέσβυ· σῇ γὰρ ἐνθανεῖν χερὶ
θέλω· πέπλοις δὲ σῶμ' ἐμὸν κρύψον παρών·
ἐπεὶ σφαγῆς γε πρὸς τὸ δεινὸν εἶμ' ἐγώ,
εἴπερ πέφυκα πατρὸς οὕπερ εὔχομαι.

III. Parse fully (with parts of verbs) :—

λαχοῦσα, θάνω, κρύψον, βαίης, μαθεῖν, ἐξέδραμεν, κεκτῴμεθα, μενοῦντα, ἀπειργμένοι.

C.—ISOCRATES AD DEMONICUM.

Translate with notes on words and phrases underlined:—

(i) οὐδὲ τὸν πλοῦτον παρακαίρως ἠγάπα, ἀλλ' ἀπέλαυε μέν τῶν παρόντων ἀγαθῶν ὡς θνητὸς, ἐπεμελεῖτο δὲ τῶν ὑπαρχόντων ὡς ἀθάνατος. οὐδὲ ταπεινῶς διῴκει τὸν αὑτοῦ βίον, ἀλλὰ φιλόκαλος ἦν καὶ μεγαλοπρεπὴς καὶ τοῖς φίλοις κοινὸς, καὶ μᾶλλον ἐθαύμαζε τοὺς περὶ αὑτὸν σπουδάζοντας ἢ τοὺς γένει προσήκοντας· ἡγεῖτο γὰρ εἶναι πρὸς ἑταιρίαν πολλῷ κρείττω φύσιν νόμου καὶ τρόπον γένους καὶ προαίρεσιν ἀνάγκης.

(ii) τὰς ἡδονὰς θήρευε τὰς μετὰ δόξης· τέρψις γὰρ σὺν τῷ καλῷ μὲν ἄριστον, ἄνευ δὲ τούτου κάκιστον. εὐλαβοῦ τὰς διαβολὰς, κἂν ψευδεῖς ὦσιν· οἱ γὰρ πολλοὶ τὴν μὲν ἀλήθειαν ἀγνοοῦσι, πρὸς δὲ τὴν δόξαν ἀποβλέπουσιν.

(iii) μήτε μετὰ βλάβης πειρῶ τῶν φίλων μήτ' ἄπειρος εἶναι τῶν ἑταίρων θέλε. τοῦτο δὲ ποιήσεις, ἐὰν μὴ δεόμενος τὸ δεῖσθαι προσποιῇ.

(iv) τὴν μὲν γὰρ τούτων χρείαν ῥᾳδίως εἰδήσεις, τὸν δὲ μετ' εὐνοίας συμβουλεύοντα χαλεπῶς εὑρήσεις. ὅπως οὖν μὴ παρ' ἑτέρου τὰ λοιπὰ ζητῇς ἀλλ' ἐντεῦθεν ὥσπερ ἐκ ταμιείου προφέρῃς, ᾠήθην δεῖν μηδὲν παραλιπεῖν ὧν ἔχω σοι συμβουλεύειν.

FIRST YEAR SESSIONAL EXAMINATION.

GREEK COMPOSITION AND TRANSLATION AT SIGHT.

TUESDAY, APRIL 2ND:—2 TO 4.30 P.M.

1. Translate into Greek:—

(*a*) The enemy killed all those who had crossed the river.

(*b*) He said that his own friends had all done the same things.

(*c*) They promised that they would not help the prisoners.

(*d*) I think that those who then saved this city are worthy of honour.

(*e*) Shall we escape, or attack those who are encamped here?

(*f*) He asked me whether I knew that the danger was great.

(*g*) May you never envy your friends their riches!

(*h*) When the slaves came in order to burn the ships, they were killed.

(*i*) If you had commanded him to send for the doctor, he would have obeyed.

(*k*) They would be too lazy to fight, even if they saw that their allies were already victorious.

2. Translate into English :—

α Οἱ δὲ πρέσβεις τῶν Βοιωτῶν προσκληθέντες καὶ ἐρωτώμενοι ὅ τι ἥκοιεν, περὶ μὲν τῆς εἰρήνης οὐκέτι ἐμέμνηντο, εἶπον δὲ ὅτι εἰ μή τι κωλύοι βούλοιντο εἰς ἄστυ πρὸς τοὺς σφετέρους στρατιώτας παρελθεῖν. ὁ δ' ἐπιγελάσας· Ἀλλ' οἶδα μέν, ἔφη, ὅτι οὐ τοὺς στρατιώτας ἰδεῖν βούλεσθε, ἀλλὰ τὸ εὐτύχημα τῶν φίλων ὑμῶν θεάσασθαι πόσον τι γεγένηται. περιμείνατε οὖν, ἔφη· ἐγὼ γὰρ ὑμᾶς αὐτὸς ἄξω, καὶ μᾶλλον μετ' ἐμοῦ ὄντες γνώσεσθε ποῖόν τι τὸ γεγενημένον ἐστί. καὶ οὐκ ἐψεύσατο, ἀλλὰ τῇ ὑστεραίᾳ θυσάμενος ἦγε πρὸς τὴν πόλιν τὸ στράτευμα. καὶ τὸ μὲν τροπαῖον οὐ κατέβαλεν, εἰ δέ τι ἦν λοιπὸν δένδρον, κόπτων καὶ κάιων ἐπεδείκνυεν ὡς οὐδεὶς ἀντεξήει.

FIRST YEAR SESSIONAL EXAMINATION.

GREEK HISTORY.

TUESDAY, APRIL 2ND :—4.30 TO 5.30 P.M.

1. Show the effect upon the Peisistratid government of the action of the Tyrannicides.

2. Write short notes on : Isagoras, *κληροῦχος*, Dionysios the Phokaian. Aigina.

3. Describe (*a*) The career of Aristagoras.
(*b*) The Reforms of Mardonios.

4. Give a concise account of the Battle of Plataiai.

INTERMEDIATE EXAMINATION,

GREEK AUTHORS.

TUESDAY, APRIL 2ND :—MORNING, 9 TO 12.

(*A, B and C to be shown in separate books.*)

A.—SOPHOCLES, AJAX.

1. Translate, with notes on words and phrases underlined :—

(*a*) *εἰ δ' ὑποβαλλόμενοι κλέπτουσι μύθους*
οἱ μεγάλοι βασιλῆς,
ἢ τᾶς ἀσώτου Σισυφιδᾶν γενεᾶς,
μή, μή μ', ἄναξ, ἔθ' ὧδ' ἐφάλοις κλισίαις
ὄμμ' ἔχων κακὰν φάτιν ἄρῃ.

(*b*) *ποῖ τις οὖν φύγῃ ;*
ποῖ μολὼν μενῶ ;
εἰ τὰ μὲν φθίνει, φίλοι, τοιοῖσδ'
ὁμοῦ πέλας, μώραις δ' ἄγραις προσκείμεθα,
πᾶς δὲ στρατὸς δίπαλτος ἄν με

χειρὶ φονεύοι.
ὦ δυστάλαινα, τοιάδ' ἄνδρα χρήσιμον
φωνεῖν, ἃ πρόσθεν οὗτος οὐκ ἔτλη ποτ' ἄν.

c) οὐκ ἔστι ταῦτα. πεῖρά τις ζητητέα
τοιάδ', ἀφ' ἧς γέροντι δηλώσω πατρὶ
μή τοι φύσιν γ' ἄσπλαγχνος ἐκ κείνου γεγώς.
αἰσχρὸν γὰρ ἄνδρα τοῦ μακροῦ χρῄζειν βίου,
κακοῖσιν ὅστις μηδὲν ἐξαλλάσσεται.
τί γὰρ παρ' ἦμαρ ἡμέρα τέρπειν ἔχει
προσθεῖσα κἀναθεῖσα τοῦ γε κατθανεῖν;

(d) ἄρχοντές εἰσιν, ὥσθ' ὑπεικτέον. τί μήν;
καὶ γὰρ τὰ δεινὰ καὶ τὰ καρτερώτατα
τιμαῖς ὑπείκει· τοῦτο μὲν νιφοστιβεῖς
χειμῶνες ἐκχωροῦσιν εὐκάρπῳ θέρει·
ἐξίσταται δὲ νυκτὸς αἰανὴς κύκλος
τῇ λευκοπώλῳ φέγγος ἡμέρᾳ φλέγειν.

(e) δέος γὰρ ᾧ πρόσεστιν αἰσχύνη θ' ὁμοῦ
σωτηρίαν ἔχοντα τόνδ' ἐπίστασο·
ὅπου δ' ὑβρίζειν ὀρᾶν θ' ἃ βούλεται παρῇ.
ταύτην νόμιζε τὴν πόλιν χρόνῳ ποτὲ
ἐξ οὐρίων δραμοῦσαν εἰς βυθὸν πεσεῖν.

(f) τίς ἄρα νέατος, ἐς πότε λήξει πολυπλάγκτων ἐτέων
ἀριθμός,
τὰν ἄπαυστον αἰὲν ἐμοὶ δορυσσοήτων μόχθων ἄταν
ἐπάγων
ἀν τὰν εὐρώδεα Τρωΐαν,
δύστανον ὄνειδος Ἑλλάνων.

2. Translate and comment on:—

(a) οὐ σῖγ' ἀνέξει μηδὲ δειλίαν ἀρεῖ;
vv.ll. ἄρῃς, ἀρῇ.

(*b*) οὐ γὰρ γένοιτ' ἂν ταῦθ' ὅπως οὐχ ὧδ' ἔχειν.

(*c*) ἐγὼ δ' ὁ τλάμων παλαιὸς ἀφ' οὗ χρόνος
'Ιδαία μίμνων λειμωνίᾳ ποίαι μήλων
ἀνήριθμος ἀιὲν εὔνομαι
χρόνῳ τρυχόμενος. (So the Mss.)

(*d*) ὅπως μοι Νύσια Κνώσι' ὀρχήματ' αὐτοδαῆ ξυνὼν
ἰάψῃς.

(*e*) κοὐδεὶς ἐπίσταταί με συμμαθεῖν τόπος. (so Mss.)

B.—THUCYDIDES, "SIEGE OF PLATAEA" AND "RETREAT FROM SYRACUSE."

Translate with notes :—

(*a*) τὸ δὲ πλεῖστον καὶ ὅσον μάλιστα ἦν ξυνεστραμμένον ἐσπίπτουσιν ἐς οἴκημα μέγα, ὃ ἦν τοῦ τείχους πλησίον, καὶ αἱ θύραι ἀνεῳγμέναι ἔτυχον αὐτοῦ, οἰόμενοι πύλας τὰς θύρας τοῦ οἰκήματος εἶναι καὶ ἄντικρυς δίοδον ἐς τὸ ἔξω.

(*b*) οἱ μὲν οὖν Πλαταιῆς ἐκείνους ἑώρων μᾶλλον ἐκ τοῦ σκότους ἑστῶτες ἐπὶ τοῦ χείλους τῆς τάφρου, καὶ ἐτόξευόν τε καὶ ἐσηκόντιζον ἐς τὰ γυμνά, αὐτοὶ δὲ ἐν τῷ ἀφανεῖ ὄντες ἧσσον διὰ τὰς λαμπάδας καθεωρῶντο, ὥστε φθάνουσι τῶν Πλαταιῶν καὶ οἱ ὕστατοι διαβάντες τὴν τάφρον, χαλεπῶς δὲ καὶ βιαίως· κρύσταλλός τε γὰρ ἐπεπήγειν οὐ βέβαιος ἐν αὐτῇ ὥστ' ἐπελθεῖν, καὶ ἡ νὺξ ὑπονιφομένη πολὺ τὸ ὕδωρ ἐν αὐτῇ ἐπεποιήκειν, ὃ μόλις ὑπερέχοντες ἐπεραιώθησαν. ἐγένετο δὲ καὶ ἡ διάφευξις αὐτοῖς μᾶλλον διὰ τοῦ χειμῶνος τὸ μέγεθος.

(*c*) τῷ τε σίτῳ ἐπιλιπόντι ἐπιέζοντο.

(*d*) περὶ τοῖς δορατίοις διεφθείροντο.

(*e*) προηγγέλθη δὲ αὐτοῖς καὶ ἡ ἐπιβολὴ τῶν σιδηρῶν χειρῶν, καὶ πρός τε τἆλλα ἐξηρτύσαντο ὡς ἕκαστα καὶ πρὸς τοῦτο· τὰς γὰρ πρῴρας, καὶ τῆς νεὼς ἄνω ἐπὶ πολὺ

κατεβύρσωσαν, ὅπως ἂν ἀπολισθάνοι καὶ μὴ ἔχοι ἀντιλαβὴν ἡ χεὶρ ἐπιβαλλομένη.

(*f*) ἄλλοι δὲ καὶ πρὸς ἀντίπαλόν τι τῆς ναυμαχίας ἀπιδόντες, διὰ τὸ ἀκρίτως ξυνεχὲς τῆς ἁμίλλης, καὶ τοῖς σώμασιν αὐτοῖς ἴσα τῇ δόξῃ περιδεῶς ξυναπονεύοντες ἐν τοῖς χαλεπώτατα διῆγον· ἀεὶ γὰρ παρ' ὀλίγον ἢ διέφευγον ἢ ἀπώλλυντο. ἦν τε ἐν τῷ αὐτῷ στρατεύματι τῶν Ἀθηναίων, ἕως ἀγχώμαλα ἐναυμάχουν, πάντα ὁμοῦ ἀκοῦσαι, ὀλοφυρμός, βοή, νικῶντες, κρατούμενοι, ἄλλα ὅσα ἐν μεγάλῳ κινδύνῳ μέγα στρατόπεδον πολυειδῆ ἀναγκάζοιτο ἂν φθέγγεσθαι.

(*g*) θᾶσσον γὰρ ὁ Νικίας ἦγε, νομίζων οὐ τὸ ὑπομένειν ἐν τῷ τοιούτῳ, ἑκόντας εἶναι, καὶ μάχεσθαι, σωτηρίαν, ἀλλὰ τὸ ὡς τάχιστα ὑποχωρεῖν, τοσαῦτα μαχομένους ὅσα ἀναγκάζονται.

C.—HOMER, ODYSSEY IX.

Translate, with brief notes on words underlined :—

(*a*) ἑζόμενος δ' ἤμελγεν ὄις καὶ μηκάδας αἶγας,
πάντα κατὰ μοῖραν, καὶ ὑπ' ἔμβρυον ἦκεν ἑκάστῃ.
αὐτίκα δ' ἥμισυ μὲν θρέψας λευκοῖο γάλακτος
πλεκτοῖς ἐν ταλάροισιν ἀμησάμενος κατέθηκεν,
ἥμισυ δ' αὖτ' ἔστησεν ἐν ἄγγεσιν, ὄφρα οἱ εἴη
πίνειν αἰνυμένῳ καί οἱ ποτιδόρπιον εἴη.

(*b*) ἄρσενες ὄιες ἦσαν ἐυτρεφέες, δαυμαλοι,
καλοί τε μεγάλοι τε, ἰοδνεφὲς εἶρος ἔχοντες·
τοὺς ἀκέων συνέεργον ἐυστρεφέεσσι λύγοισι,
τῇς ἔπι Κύκλωψ εὖδε πέλωρ, ἀθεμίστια εἰδὼς,
σύντρεις αἰνύμενος· ὁ μὲν ἐν μέσῳ ἄνδρα φέρεσκε,
τὼ δ' ἑτέρω ἑκάτερθεν ἴτην σώοντες ἑταίρους.

INTERMEDIATE EXAMINATION.

GREEK PROSE COMPOSITION AND TRANSLATION AT SIGHT.

TUESDAY, APRIL 2ND:—AFTERNOON, 2 TO 4.30.

1. Translate into Greek:—

When the Parthenioi were at war with the Sunaichmoi, they had to endure many hardships, especially as their general, Lithoteiches by name, had forbidden them to steal or plunder the property of the people of the country; for he said that if he could endure cold and toil and scanty food, so also could they. And one day as they marched along, a soldier, indignant that they were continually pursuing and never resting, said to the man next to him in the ranks, "Would that all the Sunaichmoi might perish and go to the house of Hades!" But the other quickly replied, "Pray not so; for then Lithoteiches would lead us even through gloom and fire to the very gates of Tartarus; so that we are better off as we are."

2. Translate into English:—

(*a*) Καὶ οἱ Κερκυραῖοι, δείσαντες μὴ σφίσιν ἐπιπλεύσαντες ἐπὶ τὴν πόλιν, ὡς κρατοῦντες, οἱ πολέμιοι ἢ τοὺς ἐκ τῆς νήσου ἀναλάβωσιν ἢ καὶ ἄλλο τι νεωτερίσωσι, τούς τε ἐκ τῆς νήσου πάλιν ἐς τὸ Ἡραῖον διεκόμισαν καὶ τὴν πόλιν ἐφύλασσον. οἱ δ' ἐπὶ μὲν τὴν πόλιν οὐκ ἐτόλμησαν πλεῦσαι, κρατοῦντες τῇ ναυμαχίᾳ, τρεῖς δὲ καὶ δέκα ναῦς ἔχοντες τῶν Κερκυραίων ἀπέπλευσαν ἐς τὴν ἤπειρον, ὅθενπερ ἀνηγάγοντο. τῇ δ' ὑστεραίᾳ ἐπὶ μὲν τὴν πόλιν οὐδὲν μᾶλλον ἐπέπλεον, καίπερ ἐν πολλῇ ταραχῇ καὶ φόβῳ ὄντας, καὶ Βρασίδου παραινοῦντος, ὡς λέγεται, Ἀλκίδᾳ, ἰσοψήφου δὲ οὐκ ὄντος· ἐπὶ δὲ τὴν Λευκίμνην τὸ ἀκρωτήριον ἀποβάντες ἐπόρθουν τοὺς ἀγρούς.

(*b*) καὶ τοὺς μὲν οὐκέτ' ὄντας ἀριθμῆσαι πάρα,
τοὺς δ' ἐκ θαλάσσης ἀσμένως πεφευγότας,
νεκρῶν φέροντας ὀνόματ' εἰς οἴκους πάλιν.
ἐγὼ δ' ἐπ' οἶδμα πόντιον γλαυκῆς ἁλὸς
τλήμων ἁλῶμαι χρόνον ὅσονπερ Ἰλίου
πύργους ἔπερσα, κεἰς πάτραν χρῄζων μολεῖν,
οὐκ ἀξιοῦμαι τοῦδε πρὸς θεῶν τυχεῖν.
Λιβύης τ' ἐρήμους ἀξένους τ' ἐπιδρομὰς
πέπλευκα πάσας· χὥταν ἐγγὺς ὦ πάτρας,
πάλιν μ' ἀπωθεῖ πνεῦμα.

INTERMEDIATE EXAMINATIONS.

GREEK HISTORY AND LITERATURE.

TUESDAY, APRIL 2ND:—AFTERNOON, 4.30 TO 5.30.

(*A and B to be shown up in separate books.*)

A. GREEK HISTORY.

1. With what events are the following names connected? Give dates and indicate effects on subsequent history.

Ithomé, Sphacteria, Amphipolis, Mytilene, Melos, Nisaea, Coronea, Delium, Sybota, Anaxagoras, Phormio.

2. State the chief constitutional changes which took place at Athens during the ascendancy of Pericles. Indicate their effects on the national character. How far is it correct to call Pericles the first of the demagogues?

3. Explain the following terms:—Cleruch, Peltast, Oikist, Metoikos Epiphora, Prytaneia, Probouleuma.

B. GREEK LITERATURE.

1. Give a brief statement of the attitude of recent criticism towards what is known as the Homeric Controversy.

2. Give an account of Choral Lyric Poetry, and mention and characterize its leading representatives.

3. With regard to Greek Tragedy show (1) how it was built up out of pre-existing materials, and (2) how the Art of Euripides differentiated itself from that of his predecessors.

THIRD YEAR.

HERODOTUS.

FRIDAY, APRIL 12TH, AFTERNOON, 2 TO 3.

1. Translate :—

Ἐνθαῦτα συνεκύρεον νέες ἥ τε Θεμιστοκλέος διώκουσα νέα καὶ ἡ Πολυκρίτου τοῦ Κρίου ἀνδρὸς Αἰγινήτεω νηῒ ἐμβαλοῦσα Σιδωνίῃ, ἥ περ εἶλε τὴν προφυλάσσουσαν ἐπὶ Σκιάθῳ τὴν Αἰγιναίην, ἐπ' ἧς ἔπλεε Πυθέης ὁ Ἰσχενόου, τὸν οἱ Πέρσαι κατακοπέντα ἀρετῆς εἵνεκεν εἶχον ἐν τῇ νηῒ ἐκπαγλεόμενοι. τὸν δὴ περιάγουσα ἅμα Περσῃσι ἦλω νηῦς ἡ Σιδωνίη ὥστε Πυθέην οὕτω σωθῆναι ἐς Αἴγιναν. ὡς δὲ ἐσείδε τὴν νέα τὴν Ἀττικὴν ὁ Πολύκριτος, ἔγνω τὸ σημήϊον ἰδὼν τῆς στρατηγίδος, καὶ βώσας τὸν Θεμιστοκλέα ἐπεκερτόμησε ἐς τῶν Αἰγινητέων τὸν μηδισμὸν ὀνειδίζων. ταῦτα μέν νυν νηῒ ἐμβαλὼν ὁ Πολύκριτος ἀπέρριψε ἐς Θεμιστοκλέα, οἱ δὲ βάρβαροι, τῶν αἱ νέες περιεγένοντο, φεύγοντες ἀπίκοντο ἐς Φάληρον ὑπὸ τὸν πεζὸν στρατόν.

2. Translate :—

Ταῦτα μέν νυν ἐς τοσοῦτο παρεγύμνου ἐπὶ δὲ τοῖσι κατήκουσι πρήγμασι τάδε ποιητέα εἶναί σφι ἔλεγε· τῶν τε προβάτων τῶν Εὐβοϊκῶν ὅσα τις ἐθέλοι καταθύειν (κρέσσον γὰρ εἶναι τὴν στρατιὴν ἔχειν ἢ τοὺς πολεμίους) παραίνεε τε προείπεῖν τοῖσι ἑωυτῶν ἑκάστους πῦρ ἀνακαίειν. κομιδῆς δὲ πέρι τὴν ὥρην αὐτῷ μελήσειν ὥστε ἀσινέας ἀπικέσθαι ἐς τὴν Ἑλλάδα. ταῦτα ἤρεσέ σφι ποιέειν καὶ αὐτίκα πῦρ ἀνακαυσάμενοι ἐτράποντο πρὸς τὰ πρόβατα.

3. Give the Ionic for :—πολίτου, ὀρρωδῶ, δέχομαι, κιθῶν, πρᾶγμα, νόσος, πόλεις (Acc. Pl.), ὦν, ἑώρων, τεταγμένοι ἦσαν, ὦν, λήψομαι, ἀξιοῦμεν.

4. The position of Thriasian plain, Thermaic Gulf, Seriphos, Phalerum, Abdera, Andros.

THIRD AND FOURTH YEARS.

GREEK PROSE COMPOSITION AND TRANSLATION AT SIGHT.

THURSDAY, APRIL 11TH:—AFTERNOON, 2 TO 4.30.

1. Translate into Greek:—

Perkin Warbeck, as Richard the Fourth, besieging Exeter.—When therefore they were come before Exeter, they forbare to use any force at the first, but made continual shouts and outcries to terrify the inhabitants. They did like wise in divers places call and talk to them from under the walls to join with them and be of their party: telling them, that the king would make them another London, if they would be the first town that should acknowledge him. But they had not the wit to send to them in any orderly fashion agents or chosen men, to tempt them and to treat with them. The citizens on their part shewed themselves stout and loyal subjects. Neither was there so much as any tumult or division amongst them; but all prepared themselves for a valiant defence and making good the town.

2. Translate into English:—

(*a*) Τοῦ δ' ἐπιγιγνομένου θέρους εὐθὺς ἐπειγομένων τῶν Χίων ἀποστεῖλαι τὰς ναῦς, καὶ δεδιότων μὴ οἱ Ἀθηναῖοι νῦα πρασσόμενα αἴσθωνται (πάντες γὰρ κρυφα αὐτῶν ἐπρεσβεύοντο), ἀποπέμπουσιν οἱ Λακεδαιμόνιοι ἐς Κόρινθον ἄνδρας Σπαρτιάτας τρεῖς, ὅπως ἀπὸ τῆς ἑτέρας θαλάσσης ὡς τάχιστα ἐπὶ τὴν πρὸς Ἀθήνας ὑπερενεγκόντες τὰς ναῦς τὸν ἰσθμὸν κελεύσωσι πλεῖν ἐς Χίον πάσας, καὶ ἃς ὁ

Αγις παρεσκεύαζεν ἐς τὴν Λέσβον καὶ τὰς ἄλλας. ἦσαν δὲ αἱ ξύμμασαι τῶν ξυμμαχίδων νῆες αὐτόθι μιᾶς δέουσαι τεσσαάκοντα.

GREEK.

THIRD AND FOURTH YEARS.

AESCHYLUS, CHOEPHOROI AND PLATO, PROTAGORAS.

THURSDAY, APRIL 11TH:—MORNING, 9 TO 12.

1. Translate, with notes on words and phrases underlined:—

(a) κῆρυξ μέγιστε τῶν ἄνω τε καὶ κάτω,
ἄρηξον, Ἑρμῆ χθόνιε, κηρύξας ἐμοί,
τοὺς γῆς ἔνερθε δαίμονας κλύειν ἐμὰς
εὐχάς, πατρῴων δωμάτων ἐπισκόπους,
καὶ γαῖαν αὐτήν, ἣ τὰ πάντα τίκτεται,
θρέψασά τ' αὖθις τῶνδε κῦμα λαμβάνει·
κἀγὼ χέουσα τάσδε χέρνιβας βροτοῖς
λέγω καλοῦσα πατέρ', ἐποίκτειρόν τ' ἐμὲ
φίλον τ' Ὀρέστην, πῶς ἀνάξομεν δόμους·
πεπραμένοι γὰρ νῦν γέ πως ἀλώμεθα
πρὸς τῆς τεκούσης, ἄνδρα δ' ἀντηλλάξατο
Αἴγισθον, ὅσπερ σοῦ φόνου μεταίτιος.
κἀγὼ μὲν ἀντίδουλος· ἐκ δὲ χρημάτων
φεύγων Ὀρέστης ἐστίν, οἱ δ' ὑπερκόπως
ἐν τοῖσι σοῖς πόνοισι χλιουσιν μέγα.

Mss. omit ἄρηξον: Mss. ἐποικτείροντ', πεπραγμένοι, φεύγειν, μέτα.

(b) τὰ μὲν γὰρ ἐκ γῆς δυσφρόνων μηνίματα
βροτοῖς πιφαύσκων εἶπε, τὰς δ' αἰνῶν νόσους,
σαρκῶν ἐπαμβατῆρας ἀγρίαις γνάθοις
λειχῆνας ἐξέσθοντας ἀρχαίαν φύσιν,

λευκὰς δὲ κόρσας τῇδ' ἐπαντέλλειν νόσῳ·
ἄλλας τ' ἐφώνει προσβολὰς Ἐρινύων,
ἐκ τῶν πατρῴων αἱμάτων τελουμένας,
τὸ γὰρ σκοτεινὸν τῶν ἐνερτέρων βέλος
ἐκ προστροπαίων ἐν γένει πεπτωκότων,
καὶ λύσσα, καὶ μάταιος ἐκ νυκτῶν φόβος
ὁρῶντα λαμπρὸν ἐν σκότῳ νωμῶντ' ὀφρὺν
κινεῖ, ταράσσει, καὶ διώκεσθαι πόλεως
χαλκηλάτῳ πλάστιγγι λυμανθὲν δέμας.
Mss. μειλίγματα, τὰς δὲ νῷν, ἐπαντέλλει.

(c) δι' ὥτων δὲ συν-
τέτραινε μῦθον ἡσύχῳ φρενῶν βάσει.
τὰ μὲν γὰρ οὕτως ἔχει,
τὰ δ' αὐτὸς ὄργα μαθεῖν.
πρέπει δ' ἀκάμπτῳ μένει καθήκειν.
Mss. ὀργᾷ.

(d) ἐπεὶ δ' ἐπεμνησάμην ἀμειλίχων
πόνων, ἀκαίρως δὲ δυσφιλὲς γαμή-
λευμ' ἀπεύχετον δόμοις
γυναικοβούλους τε μήτιδας φρενῶν
ἐπ' ἀνδρὶ τευχεσφόρῳ,
ἐπ' ἀνδρὶ δᾴοις ἐπικότῳ σέβας,
τίω δ' ἀθέρμαντον ἑστίαν δόμων
γυναικείαν ἄτολμον αἰχμάν.
κακῶν δὲ πρεσβεύεται τὸ Λήμνιον
λόγῳ·

(e) μή νυν σὺ ταῦτ' ἄγγελλε δεσπότου στύγει·
ἀλλ' αὐτὸν ἐλθεῖν, ὡς ἀδειμάντως κλύῃ,
ἄνωχθ' ὅσον τάχιστα γηθούσῃ φρενί.
ἐν ἀγγέλῳ γὰρ κρυπτὸς ὀρθοῦται λόγος.
ἀλλ' ἦ φρονεῖς εὖ τοῖσι νῦν ἠγγελμένοις;

ἀλλ' εἰ τροπαίαν Ζεὺς κακῶν θήσει ποτέ.

(*f*) τάχα δὲ παντελὴς χρόνος ἀμείψεται
πρόθυρα δωμάτων, ὅταν ἀφ' ἑστίας
μύσος πᾶν κλύσῃ
καθαρμοῖσιν ἀτᾶν ἐλατηρίοις.
τύχαι δ' εὐπροσωποκοῖται τὸ πᾶν
ἰδεῖν πρευμενεῖς
μετοίκοις δόμων πεσοῦνται πάλιν.
πάρα τὸ φῶς ἰδεῖν.

2. Comment on the following Ms. readings:—

(*a*) γένεσθε τῶνδε σύμβουλοι πέρι
τυφῶ χέουσα τάσδε κηδείους χοὰς
πῶς εὔφρων εἴπω, πῶς κατεύξομαι πατρί;

(*b*) δίπαις τοῖς ἐπιτυμβιδίοις
θρῆνος ἀναστενάξει.

(*c*) καὶ μὴν ἀμόμφατον δὲ τινατὸν λόγον.

3. Indicate briefly the purpose of the κομμός (309-478) and its general metrical structure.

4. Translate, and explain in reference to the context:—

(*a*) Ἴσως ἄν, ἦν δ' ἐγώ, ἀληθῆ λέγοιμεν, οὐ μέντοι ἱκανῶς γε· ἐρωτήσεως γὰρ ἔτι ἡ ἀπόκρισις ἡμῖν δεῖται, περὶ ὅτου ὁ σοφιστὴς δεινὸν ποιεῖ λέγειν. ὥσπερ ὁ κιθαριστὴς δεινὸν δήπου ποιεῖ λέγειν περὶ οὗπερ καὶ ἐπιστήμονα, περὶ κιθαρίσεως — ἦ γάρ; Ναί. Εἶεν· ὁ δὲ δὴ σοφιστὴς περὶ τίνος δεινὸν ποιεῖ λέγειν; Δῆλον ὅτι περὶ οὗπερ καὶ ἐπίστασθαι. Εἰκός γε. τί δή ἐστιν τοῦτο, περὶ οὗ αὐτός τε ἐπιστημων ἐστὶν ὁ σοφιστὴς καὶ τὸν μαθητὴν ποιεῖ; Μὰ Δί', ἔφη, οὐκέτι ἔχω σοι λέγειν.

(*b*) ἃ μὲν γὰρ αὐτῶν σμικρότητι ἤμπισχεν, πτηνὸν φυγὴν ἢ κατάγειον οἴκησιν ἔνεμεν· ἃ δὲ ηὔξε μεγέθει, τῷδε

αὐτῷ αὐτὰ ἔσῳζεν· καὶ τἆλλα οὕτως ἐπανισῶν ἔνεμεν. ταῦτα δὲ ἐμηχανᾶτο εὐλάβειαν ἔχων μή τι γένος ἀϊστωθείη· ἐπειδὴ δὲ αὐτοῖς ἀλληλοφθοριῶν διαφυγὰς ἐπήρκεσε, πρὸς τὰς ἐκ Διὸς ὥρας εὐμαρίαν ἐμηχανᾶτο ἀμφιεννὺς αὐτὰ πυκναῖς τε θριξὶν καὶ στερεοῖς δέρμασιν, ἱκανοῖς μὲν ἀμῦναι χειμῶνα, δυνατοῖς δὲ καὶ καύματα, καὶ ἐς εὐνὰς ἰοῦσιν ὅπως ὑπάρχοι τὰ αὐτὰ ταῦτα στρωμνὴ οἰκεία τε καὶ αὐτοφυὴς ἑκάστῳ· καὶ ὑποδῶν τὰ μὲν ὁπλαῖς, τὰ δὲ δέρμασιν στερεοῖς καὶ ἀναίμοις.

(c) νῦν δ' ἐστὶν ὥσπερ ἂν εἰ δέοιό μου Κρίσωνι τῷ Ἰμεραίῳ δρομεῖ ἀκμάζοντι ἕπεσθαι, ἢ τῶν δολιχοδρόμων τῳ ἢ τῶν ἡμεροδρόμων διαθεῖν τε καὶ ἕπεσθαι, εἴποιμι ἄν σοι ὅτι πολὺ σοῦ μᾶλλον ἐγὼ ἐμαυτοῦ δέομαι θέουσιν τούτοις ἀκολουθεῖν, ἀλλ' οὐ γὰρ δύναμαι, ἀλλ' εἴ τι δέει θεάασθαι ἐν τῷ αὐτῷ ἐμέ τε καὶ Κρίσωνα θέοντας, τούτου δέου συγκαθεῖναι· ἐγὼ μὲν γὰρ οὐ δύναμαι ταχὺ θεῖν οὗτος δὲ δύναται βραδέως.

(d) τῷ δὲ κακῷ οὐκ ἐγχωρεῖ γενέσθαι, ἀλλ' ἀεὶ εἶναι ἀνάγκη· ὥστε τὸν μὲν εὐμήχανον καὶ σοφὸν καὶ ἀγαθὸν ἐπειδὰν ἀμήχανος συμφορὰ καθέλῃ, οὐκ ἔστι μὴ οὐ κακὸν ἔμμεναι· σὺ δὲ φῄς, ὦ Πιττακέ, χαλεπὸν ἐσθλὸν ἔμμεναι· τὸ δ' ἐστὶν γενέσθαι μὲν χαλεπὸν (δυνατὸν δὲ) ἐσθλόν ἔμμεναι δὲ ἀδύνατον.

πράξας μὲν γὰρ εὖ πᾶς ἀνὴρ ἀγαθός,
κακὸς δ' εἰ κακῶς.

τίς οὖν εἰς γράμματα ἀγαθὴ πρᾶξίς ἐστιν, καὶ τίς ἄνδρα ἀγαθὸν ποιεῖ εἰς γράμματα; δῆλον ὅτι ἡ τούτων μάθησις.

(e) Ἄλλο τι οὖν πάλιν καὶ περὶ αὐτοῦ τοῦ λυπεῖσθαι ὁ αὐτὸς τρόπος; τότε καλεῖτε αὐτὸ τὸ λυπεῖσθαι ἀγαθόν, ὅταν ἢ μείζους λύπας τῶν ἐν αὐτῷ οὐσῶν ἀπαλλάττῃ ἢ μείζους ἡδονὰς τῶν λυπῶν παρασκευάζῃ; ἐπεὶ εἰ πρὸς ἄλλο τι τέλος ἀποβλέπετε, ὅταν καλῆτε αὐτὸ τὸ λυπεῖσ-

θαι ἀγαθόν, ἢ πρὸς ὃ ἐγὼ λέγω, ἔχετε ἡμῖν εἰπεῖν· ἀλλ' οὐχ ἕξετε.

5. Write grammatical notes on :—

(*a*) πότερον περὶ αὐτῶν μόνος οἴει δεῖν διαλέγεσθαι.

(*b*) ἐπειδὴ δὲ ὁ ἄνθρωπος θείας μέτεσχε μοίρας, πρῶτον μὲν ξῴων μόνον θεοὺς ἐνόμισε.

(*c*) ἐρωτᾷ οὖν Ἑρμῆς Δία τίνα οὖν τρόπον δοίη δίκην καὶ αἰδῶ ἀνθρώποις.

6. What indications does this Dialogue contain of (*a*) the date of composition, (*b*) the date of the action? Are there any Anachronisms?

THIRD YEAR SESSIONAL EXAMINATION.

GREEK LITERATURE AND ANTIQUITIES.

SATURDAY, APRIL 13TH :—AFTERNOON, 1.30 TO 3.30.

(*A and B to be shown up in separate books.*)

A. GREEK LITERATURE.

1. Give a short statement of the reasons for the importance which should be attached to the study of Greek Literature.

2. Briefly characterize the main periods into which the history of Greek Literature naturally falls.

3. Give a short sketch of the history of (*α*) Didactic Poetry, and (*β*) Comedy.

4. "There is a sense in which Pindar may be said to stand midway between the Homeric Epos and the Athenian Drama." Explain this statement.

B. ATHENS IN THE TIME OF PERICLES.

1. What are the leading features of the geography of Attica? Indicate their bearing on her history, in relation both to home affairs and foreign relations.

2. What do we know of the ethnology of Attica? Indicate some of the evidence for the character of the population in early times, and the nature of the foreign elements which afterwards combined with it.

3. Indicate the chief features in the financial system of Athens. Explain the technical terms in the following :—

καὶ πρῶτον μὲν λόγισαι φαύλως, μὴ ψήφοις ἀλλ' ἀπὸ χειρός,
τὸν φόρον ἡμῖν ἀπὸ τῶν πόλεων συλλήβδην τὸν προσίοντα·
κἄξω τούτου τὰ τέλη χωρὶς καὶ τὰς πολλὰς ἑκατοστάς,
πρυτανεῖα, μέταλλ', ἀγοράς, λιμένας, μισθώσεις, δημιόπρατα.

4. What do you know of the following festivals :—Apaturia, Lenaia, Panathenaia, Sunoikia? Describe in detail the mode of production of a Tragedy, including the preliminary steps and the mode of arriving at a verdict.

5. Explain :—ἡ ἄνω βουλή, εἰσαγωγεύς, ὀέδροι, κλητῆρες, ἐχῖνος, ἐπωβελία, εὔθυνα, πένταθλον, πεσσοί, πρόλογος, ἀντίδοσις.

(b) γέρων γέρων εἶ· τὴν δ' ἐμὴν στρατηγίαν
λέγων ἔμ' ὠφελοῖς ἂν ἢ σιγῶν πλέον.
Ἑλένη δ' ἐμόχθησ' οὐχ ἑκοῦσ', ἀλλ' ἐκ θεῶν,
καὶ τοῦτο πλεῖστον ὠφέλησεν Ἑλλάδα·
ὅπλων γὰρ ὄντες καὶ μάχης ἀΐστορες
ἔβησαν εἰς τἀνδρεῖον· ἡ δ' ὁμιλία
πάντων βροτοῖσι γίγνεται διδάσκαλος,
εἰ δ' εἰς πρόσοψιν τῆς ἐμῆς ἐλθὼν ἐγὼ
γυναικὸς ἔσχον μὴ κτανεῖν, ἐσωφρόνουν.

THIRD AND FOURTH YEARS.

COMPARATIVE PHILOLOGY.

WEDNESDAY, APRIL 17TH :—MORNING, 9 TO 12.

A.

N.B. Full marks may be obtained by satisfactory answers to 8 questions four of which, however, must be Questions 8, 9, 10 and 11.

1. Describe in two or three lines the nature of the service rendered to Comparative Philology by ;—Jacob Grimm, Schleicher, Zeuss, Verner, Leskien, J. Wackernagel, Brugmann, Windisch, Hübschmann.

2. Classify the members of the Indo-European family of languages under eight groups, and state cases where two languages have features in common, not shared by the other members of the family. State precisely what those features are.

3. Enumerate the principal Greek dialects. What is meant by the Coine ? Are there any remains of the old local dialects in Modern Greek ?

4. Classify the Slavonic languages.

5. Name two or three features which are peculiar to the following languages :—Sanskrit, Celtic, Italic, German.

6. What do you suppose to be the primitive home of the Indo-Europeans ? State very briefly your reasons for your answer.

7. Classify compounds in Indo-European Under what heading would you classify the following :—good foot ball player, *ἰατρόμαντις*, *δεσπότης*, Tuesday.

8. Give examples of the Ablaut series to which forms like *λείπω* belong. Show how it is represented in the strong verbs in English What do you suppose to be the origin of Ablaut ?

9. Explain the existence of the two forms *προτί* and *πρός*. Account for the development of *ἐς*, *εἰς*, *ἐνί*, *εἰν* and *εἰνί* from an original *ἐν*. Account for the neuter plural *ἄττα* for *τινά*.

10. Account for the existence of *ἐσπόμην* as 2nd Aorist of *ἕπομαι* ; also for the forms *πόδεσσι*, *ὀκτώ* (Greek Dial.), *ἐμοῖ* (for *μοῦ*), *μήτηρ* (for *μητήρ*), *ἡμῖν* (for *ἡμίν*), *εἰς* (for *εἴς*), *popina*, and for the difference of pronunciation of one in *one* and *alone*.

11. Discuss the relationship of the vowels in the following groups :—
(*a*) acceptus and captus ;
(*b*) reddere and dare ;
(*c*) adigo and ago ;

(*d*) sokyan (Goth.) ἀγέομαι, and seek (Eng.);
(*e*) bodhate (Sk.) and πυθέται;
(*f*) tiuha (Gothic) and duco;
(*y*) one and unus;
(*h*) death and Tod (Germ.); what is the Gothic and what form would it have taken in Latin?

How is it that the German equivalent of head is "Haupt" and not "Hopt" as "death" appears as "Tod"?

(*i*) stone and Stein (Germ.); what is the Gothic?
(*k*) ὠκίς and ashush (Sk.).
(*l*) pitar (Sk.) and pater.
(*m*) glaggwus (Goth.), glauwer (Old Germ.) and gloggr (Icelandic).
(*n*) ada (Gothic of Crimea), egg, and Ei (Germ). What would the Gothic be?
(*o*) Geiss (Germ.) and haedus (Lat.).

12. To explain the apparent anomaly in the stem of words like ὕδωρ (Gk.) Gen. udnas (Sk.), femur (Latin) Gen. feminis, Bartholomae suggests that there may have been two Locative terminations one in r and one in n, and that the confusion of these gave rise to the two forms. Discuss this theory and state any others that have been given.

B

1. Define root, inflexion, rhotacismus, compensatory lengthening, prothesis, aphaeresis. Give examples.
2. Explain the origin and use of the augment, both temporal and syllabic.
3. What do we know of the origin of the personal endings of the verb?
4. How is the short vowel in the termination of the nominative singular of the first declension in Latin accounted for? Compare the Greek form.

5. Show the origin and relation of the following forms:
πόδα, pedem; πατρί, patri; generis, γένους; πόδες, pedes; πόδας, pedes; civis and cives (acc. pl.); honor, honos; ἄλλος, alius; ἥδυς, suavis; ζυγόν, ivgum; βαίνω, venio, aurora, ἕως; οἶκος, vicus; centum, ἑκατόν; frigus, ῥῖγος; poculum, poclum; viderim, εἰδείην.

6. Explain such formations as rettuli, semestris, prudens, officina, egi, ἔλυες, amabas, φερεις, φερει, πράσσω, meus, βροτός, hic, εἰν, sequeris, sequere, legimini, fructu abl.), fructu (dat.), fructui (dat.

7. Derive the various case forms (in sing. only) of *ναῦς*, navis, *Ζεύς*, Jupiter, ille.

8. Give the probable original conjugation of sum in the present indicative, and show how the ordinary forms in Greek and Latin are related to these.

9. In what two forms does the special suffix of the optative appear? Illustrate by a variety of forms in both Greek and Latin.

B. A. ORDINARY.

GREEK HISTORY AND LITERATURE.

THURSDAY, APRIL 11TH:—AFTERNOON, 4.30 TO 5.30.

1. Indicate the chief constitutional changes in Athens from the time of Solon to that of Demosthenes.

2. Describe the general course of an Athenian law-suit. Explain the terms *εἰσαγγελία*, *πρόσκλησις*, *πρόκλησις*, *ἀπροστασίου γραφὴ*. What were the functions of the *νομοφύλακες*?

3. Explain the relation of the Satyric play to Tragedy. Indicate the chief differences between the drama of Euripides and that of his predecessors.

4. Explain the terms *εἰσφορά*, *σεισάχθεια*, *αἰτεῖν χόρον*. *πάροδος*, *φόρος*, *τριηραρχία*, and summarize the changes in regard to the two last during the period 415-330 B. C, Discuss the advantages and disadvantages of the system of *λητουργίαι*.

5. How was it that oratory became the typical form of Greek prose writing? Give a brief sketch of the lives of Andocides and Æschines.

B. A. HONOURS IN CLASSICS.

PINDAR, SELECTED ODES.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 12.

1. Translate, with notes on words and phrases underlined :—

(a) ὁ νικῶν δὲ λοιπὸν ἀμφὶ βίοτον
ἔχει μελιτόεσσαν εὐδίαν
ἀέθλων γ' ἕνεκεν. τὸ δ' αἰεὶ παράμερον ἐσλόν
ὕπατον ἔρχεται παντὶ βροτῶν· ἐμὲ δὲ στεφανῶσαι
κεῖνον ἱππίῳ νόμῳ
Αἰολῇδι μολπᾷ
χρή· πέποιθα δε ξένον
μή τιν' ἀμφότερα καλῶν τε ἴδριν ἀλλὰ καὶ δύναμιν
κυριώτερον
τῶν γε νῦν κλυταῖσι δαιδαλωσέμεν ὕμνων πτυχαῖς.
θεὸς ἐπίτροπος ἐὼν τεαῖσι μήδεται
ἔχων τοῦτο κῦδος, Ἱέρων,
μερίμναισιν.

(b) βασιλεὺς δ' ἐπεί
πετραέσσας ἐλαύνων ἵκετ' ἐκ Πυθῶνος, ἅπαντας ἐν
οἴκῳ
εἴρετο παῖδα, τὸν Εὐάδνα τέκοι· Φοίβου γὰρ αὐτὸν
φᾶ γεγάκειν
πατρός, πέρι θνατῶν δ' ἔσεσθαι μάντιν ἐπιχθονίοις
ἔξοχον, οὐδέ ποτ' ἐκλείψειν γενεάν.
ὣς ἄρα μάνυε. τοὶ δ' οὔτ' ὢν ἀκοῦσαι
οὔτ' ἰδεῖν εὔχοντο πεμπταῖον γεγεναμένον. ἀλλά
κέκρυπτο γὰρ σχοίνῳ βατίᾳ τ' ἐν ἀπειρίτῳ,
ἴων ξανθαῖσι καὶ παμπορφύροις ἀκτῖσι βεβρεγμένος
ἀβρόν

σῶμα. τὸ καὶ κατεφάμιξεν καλεῖσθαί νιν χρόνῳ σύμ-
παντι μάτηρ
τοῦτ' ὄνυμ' ἀθάνατον.

(c) μνασθέντι δὲ Ζεὺς ἄμπαλον μέλλεν θέμεν. ἀλλά νιν
οὐκ εἴασεν· ἐπεὶ πολιᾶς
εἶπέ τιν' αὐτὸς ὁρᾶν ἔνδον θαλάσσας αὐξομέναν
πεδόθεν
πολύβοσκον γαῖαν ἀνθρώποισι καὶ εὔφρονα μήλοις.
ἐκελευσεν δ' αὔτικα χρυσάμπυκα μὲν Λάχεσιν
χεῖρας ἀντείναι, θεῶν δ' ὅρκον μέγαν
μὴ παρφάμεν,
ἀλλὰ Κρόνου σὺν παιδὶ νεῦσαι, φαεννὸν ἐς αἰθέρα νιν
πεμφθεῖσαν ἑᾷ κεφαλᾷ
ἐξοπίσω γέρας ἔσσεσθαι. τελεύταθεν δὲ λόγων κορυφαὶ
ἐν ἀλαθείᾳ πετοῖσαι.

(d) Χρυσέα φόρμιγξ, Ἀπόλλωνος καὶ ἰοπλοκάμων
σύνδικον Μοισᾶν κτέανον· τᾶς ἀκούει μὲν βάσις
ἀγλαΐας ἀρχά,
πείθονται δ' ἀοιδοὶ σάμασιν,
ἀγησιχόρων ὁπόταν προοιμίων ἀμβολὰς τεύχῃς ἐλε-
λιζομένα.
καὶ τὸν αἰχματὰν κεραυνὸν σβεννύεις
ἀενάου πυρός. εὕδει δ' ἀνὰ σκάπτῳ Διὸς αἰετός, ὠκεῖαν
πτέρυγ' ἀμφοτέρωθεν χαλάξαις,
ἀρχὸς οἰωνῶν, κελαινῶπιν δ' ἐπί οἱ νεφέλαν
ἀγκύλῳ κρατί, γλεφάρων ἀδὺ κλαΐστρον, κατέχευας.
ὁ δὲ κνώσσων
ὑγρὸν νῶτον αἰωρεῖ, τεαῖς
ῥιπαῖσι κατασχόμενος· καὶ γὰρ βιατὰς Ἄρης, τρα-
χεῖαν ἄνευθε λιπών
ἐγχέων ἀκμάν, ἰαίνει καρδίαν

κωματι, κῆλα δὲ καὶ δαιμόνων θέλγει φρένας, ἀμφί τε Λατοίδα σοφίᾳ βαθυκόλπων τε Μοισᾶν.

(e) γένοι', οἷος ἐσσί· μαθὼν καλός τοι πίθων, παρὰ παισὶν αἰεί
καλός· ὁ δὲ Ῥαδάμανθυς εὖ πέπραγεν, ὅτι φρενῶν
ἔλαχε καρπὸν ἀμώμητον, οὐδ' ἀπάταισι θυμὸν τέρπεται ἔνδοθεν,
οἷα ψιθύρων παλάμαις ἔπετ' αἰεὶ βροτῶν.
ἄμαχον κακὸν ἀμφοτέροις διαιβολιᾶν ὑποφάτιες,
ὀργαῖς ἀτενὲς ἀλωπέκων ἴκελοι.
κερδοῖ δὲ τί μάλα τοῦτο κερδαλέον τελέθει;
ἄτε γὰρ εἰνάλιον πόνον ἐχοίσας βαθύ
σκευᾶς ἑτέρας, ἀβάπτιστός εἰμι, φελλὸς ὡς ὑπὲρ ἔρκος ἅλμας.

(f) ἀμπνοὰν δ' ἥρωες ἔστασαν θεοῦ σάμασιν
πιθόμενοι· κάρυξε δ' αὐτοῖς
ἐμβαλεῖν κώπαισι τερασκόπος ἀδείας ἐνίπτων ἐλπίδας·
εἰρεσία δ' ὑπεχώρησεν ταχειᾶν ἐκ παλαμᾶν ἄκορος.
σὺν Νότου δ' αὔραις ἐπ' Ἀξείνου στόμα πεμπόμενοι
ἤλυθον· ἔνθ' ἁγνὸν Ποσειδάωνος ἔσσαντ' εἰναλίου τέμενος,
φοίνισσα δὲ Θρηϊκίων ἀγέλα ταύρων ὑπῆρχεν
καὶ νεόκτιστον λίθων βωμοῖο θέναρ.
ἐς δὲ κινδυνον βαθὺν ἱέμενοι δεσπόταν λίσσοντο ναῶν,
συνδρόμων κινηθμὸν ἀμαιμάκετον
ἐκφυγεῖν πετρᾶν. δίδυμαι γὰρ ἔσαν ζωαί, κυλινδέσκοντό τε κραιπνότεραι
ἢ βαρυγδούπων ἀνέμων στίχες· ἀλλ' ἤδη τελευτὰν κεῖνος αὐταῖς
ἡμιθέων πλόος ἄγαγεν.

(g) ἀλλ' ἐμ' οὐ δεῖμα μὲν παροιχόμενον

καρτερᾶν ἔπαυσε μεριμνᾶν· τὸ δὲ πρὸ ποδὸς ἄρειον (ὁρᾶν) ἀεί
χρῆμα· πανδόλιος γὰρ αἰὼν ἐπ' ἀνδράσι κρέμαται,
ἐλίσσων βίου πόρον· ἰατὰ δ' ἐστὶ βροτοῖς σύν γ' ἐλευθερίᾳ
καὶ τά. χρὴ δ' ἀγαθὰν ἐλπίδ' ἀνδρὶ μελειν·
χρὴ δ' ἐν ἑπταπύλοισι Θήβαις τραφέντα
Αἰγίνᾳ Χαρίτων ἄωτον προνέμειν,
πατρὸς οὕνεκα δίδυμαι γένοντο θύγατρες Ἀσωπίδων
ὁπλόταται, Ζηνί τε ἄδον βασιλέϊ.

2. Annotate:—

(a) τραπέζαισί τ' ἀμφὶ δεύτατα κρεῶν
σέθεν διεδάσαντο καὶ φάγον.
Mss. ἀμφιδεύτατα: schol. videtur ἀμφιδεύματα legisse.

(b) βουλαῖς ἐν ὀρθαῖσι Ῥαδαμάνθυος
ὃν πατὴρ ἔχει γᾶς ἑτοῖμον αὐτῷ πάρεδρον
πόσις ὁ πάντων Ῥέας ὕπατον ἐχοίσας παῖς θρόνον
(Sic Mss).
(= ἀστὴρ ἀρίζηλος, ἐτυμώτατον
ἀνδρὶ φέγγος· εἴ γέ νιν ἔχων τις οἶδεν το μέλλον
ὅτι θανόντων μὲν ἐνθάδ' αὐτίκ' ἀπάλαμνοι φρένες)

(c) ἄλλοτε δ' ἄλλον ἐποπτεύει χάρις ζωθάλμιος ἁδυμελεῖ
θάμα μὲν φόρμιγγι παμφώνοισί τ' ἐν ἔντεσιν αὐλῶν.

(d) ἔνθα συγκωμάξατ'· ἐγγυάσομαι
ὔμμιν, ὦ Μοῖσαι, φυγόξενον στρατόν
μηδ' ἀπείρατον καλῶν
ἀκρόσοφον δὲ καὶ αἰχματὰν ἀφίξεσθαι.

(e) ἐκ θεοῦ δ' ἀνὴρ σοφαῖς ἀνθεῖ πραπίδεσσεν ὅμως ὤν. (Sic Mss.).

(*f*) εὐναὶ δὲ παράτροποι ἐς κακοτατ' ἀθρόαν
ἔβαλον ποτὶ καὶ τὸν ἵκοντ', ἐπεὶ νεφέλᾳ παρελέξατο.

3. What are Pindar's chief metres? Name those of the extracts in (1), and scan one extract throughout.

4. Give a brief account of Theron and his relations with Gelon.

5. Discuss Pindar's use and management of the "Myth," and contrast (in relation to Pyth. IV) the Epic and Lyric treatment of the same theme.

B. A. HONOURS IN CLASSICS.

GREEK TRANSLATION AT SIGHT

THURSDAY, APRIL 4TH:—MORNING, 9 TO 12.

1. ἀλλ' ὅτε δὴ Κρήτην μὲν ἐλείπομεν οὐδέ τις ἄλλη
φαίνετο γαιάων, ἀλλ' οὐρανὸς ἠδὲ θάλασσα,
δὴ τότε κυανέην νεφέλην ἔστησε Κρονίων
νηὸς ὕπερ γλαφυρῆς, ἤχλυσε δὲ πόντος ὑπ' αὐτῆς.
Ζεὺς δ' ἄμυδις βρόντησε καὶ ἔμβαλε νηὶ κεραυνόν·
ἣ δ' ἐλελίχθη πᾶσα Διὸς πληγεῖσα κεραυνῷ,
ἐν δὲ θεείου πλῆτο· πέσον δ' ἐκ νηὸς ἅπαντες.
οἳ δὲ κορώνῃσιν ἴκελοι περὶ νῆα μέλαιναν
κύμασιν ἐμφορέοντο· θεὸς δ' ἀποαίνυτο νόστον.
αὐτὰρ ἐμοὶ Ζεὺς αὐτὸς ἔχοντί περ ἄλγεα θυμῷ
ἱστὸν ἀμαιμάκετον νηὸς κυανοπρῴροιο
ἐν χείρεσσιν ἔθηκεν, ὅπως ἔτι πῆμα φύγοιμι.
τῷ ῥα περιπλεχθεὶς φερόμην ὀλοοῖς ἀνέμοισιν.

2. φοιτῶσ' ἤδη λείπουσίν τε
πτανοὶ Παρνασοῦ κοίτας·

αὐδῶ μὴ χρίμπτειν θριγκοῖς
μηδ' εἰς χρυσήρεις οἴκους.
μάρψω σ' αὖ τόξοις, ὦ Ζηνὸς
κήρυξ, ὀρνίθων γαμφηλαῖς
ἰσχὺν νικῶν.
ὅδε πρὸς θυμέλας ἄλλος ἐρέσσει
κύκνος· οὐκ ἄλλᾳ
φοινικοφαῆ πόδα κινήσεις;
οὐδέν σ' ἁ φόρμιγξ ἁ Φοίβου
σύμμολπος τόξων ῥύσαιτ' ἄν·
πάραγε πτέρυγας·
λίμνας ἐπίβα τᾶς Δηλιάδος·
αἱμάξεις, εἰ μὴ πείσει,
τὰς καλλιφθόγγους ᾠδάς.

3. Οὔκουν χρὴ οὔτε τοῦ θανάτου τῇ ζημίᾳ ὡς ἐχεγγύῳ πιστεύσαντας χεῖρον βουλεύσασθαι, οὔτε ἀνέλπιστον καταστῆσαι τοῖς ἀποστᾶσιν, ὡς οὐκ ἔσται μεταγνῶναι καὶ ὅτι ἐν βραχυτάτῳ τὴν ἁμαρτίαν καταλῦσαι. σκέψασθε γὰρ ὅτι νῦν μὲν, ἤν τις καὶ ἀποστᾶσα πόλις γνῷ μὴ περιεσομένη, ἔλθοι ἂν ἐς ξύμβασιν δυνατὴ οὖσα ἔτι τὴν δαπάνην ἀποδοῦναι καὶ τὸ λοιπὸν ὑποτελεῖν· ἐκείνως δὲ τίνα οἴεσθε ἧν τινα οὐκ, ἄμεινον μὲν ἢ νῦν παρασκευάσεσθαι, πολιορκίᾳ τε παρατενεῖσθαι ἐς τοὔσχατον, εἰ τὸ αὐτὸ δύναται σχολῇ καὶ ταχὺ ξυμβῆναι; ἡμῖν τε πῶς οὐ βλάβη δαπανᾶν καθημένοις διὰ τὸ ἀξύμβατον, καὶ ἢν ἕλωμεν πόλιν, ἐφθαρμένην παραλαβεῖν καὶ τῆς προσόδου τὸ λοιπὸν ἀπ' αὐτῆς στέρεσθαι; ἰσχύομεν δὲ πρὸς τοὺς πολεμίους τῷδε.

4. Ἄνδρα δή, ὡς ἔοικε, δυνάμενον ὑπὸ σοφίας παντοδαπὸν γίγνεσθαι καὶ μιμεῖσθαι πάντα χρήματα, εἰ ἡμῖν ἀφίκοιτο εἰς τὴν πόλιν αὐτός τε καὶ τὰ ποιήματα βουλόμενος ἐπιδείξασθαι, προσκυνοῖμεν ἂν αὐτὸν ὡς ἱερὸν καὶ θαυμαστὸν καὶ ἡδύν, εἴποιμεν δ' ἄν, ὅτι οὐκ ἔστι τοιοῦτος ἀνὴρ ἐν τῇ πόλει παρ' ἡμῖν οὔτε θέμις ἐγγενέσθαι, ἀπο-

πέμποιμέν τε εἰς ἄλλην πόλιν μύρον κατὰ τῆς κεφαλῆς καταχέαντες καὶ ἐρίῳ στέψαντες, αὐτοὶ δ' ἂν τῷ αὐστηροτέρῳ καὶ ἀηδεστέρῳ ποιητῇ χρῴμεθα καὶ μυθολόγῳ ὠφελείας ἕνεκα, ὃς ἡμῖν τὴν τοῦ ἐπιεικοῦς λέξιν μιμοῖτο καὶ τὰ λεγόμενα λέγοι ἐν ἐκείνοις τοῖς τύποις, οἷς κατ' ἀρχὰς ἐνομοθετησάμεθα, ὅτε τοὺς στρατιώτας ἐπεχειροῦμεν παιδεύειν.

5. Ὁρᾶθ' ὅτι πάντες ἄνδρες Ἀθηναῖοι τὸν αὐτὸν τρόποι γεγράφασιν. „ἔστω" φησὶν „ὑπὲρ αὐτοῦ ἡ αὐτὴ τιμωρία, καθάπερ ἂν τὸν Ἀθηναῖον ἀποκτείνῃ", κυρίους μὲν ἐῶντες τοὺς περὶ τούτων ὑπάρχοντας ὑμῖν νόμους, σεμνοὺς δ' ἀποφαίνοντες, οἵ γ' ἐν δωρειᾶς ἐποιήσαντο τάξει τὸ τούτων μεταδοῦναι. ἀλλ' οὐκ Ἀριστοκράτης, ἀλλὰ προπηλακίζει μὲν καθ' ὅσον δύναται τούτους ὡ ς γοῦν οὐδενὸς ἀξίων διόν τι γράφειν ἐπεχείρησε), μικρὰν δ' ἀποφαίνει κἀκείνην τὴν δωρειάν, ἐν ᾗ τὴν πολιτείαν δεδώκατε τῷ Χαριδήμῳ. ὃς γὰρ, ὡς ἀγαπώντων τοῦθ' ὑμῶν καὶ προσοφειλόντων χάριν αὐτῷ, γέγραφεν καὶ πρὸς φυλάττειν ὑμᾶς ἐκεῖνον, ὅπως ἀδεῶς ὅ τι ἂν βούληται ποιῇ, πῶς οὐ τοῦθ' ὃ λέγω διαπράττεται·

6. Λαΐς ἀμαλδυνθεῖσα χρόνῳ περικάλλεα μορφήν,
γηραλέων στυγέει μαρτυρίην ῥυτίδων·
ἔνθεν πικρὸν ἔλεγχον ἀπεχθήρασα κατόπτρου,
ἄνθετο δεσποίνῃ τῆς πάρος ἀγλαΐης.
ἀλλὰ σύ μοι, Κυθέρεια, δέχου νεότητος ἑταῖρον
δίσκον, ἐπεὶ μορφὴ σὴ χρόνον οὐ τρομέει.

CLASSICAL HONOURS EXAMINATION.

GREEK PROSE COMPOSITON.

MONDAY, APRIL 8TH :—MORNING 9 TO 12.

While such was our conduct in all parts of the world could it be hoped that any emigrant, whose situation was not utterly desperate indeed, would join us; or that all who were lovers of their countr[illegible]

more than lovers of royalty would not be our enemies? We have so shuffled in our professions and have been guilty of such duplicity that no description of Frenchmen will flock to our standard. It was a fatal error in the commencement of the war that we did not state clearly how far we meant to enter into the cause of the emigrants, and how far to connect ourselves with powers who, from their previous conduct, might well be suspected of other views than that of restoring monarchy in France.

B. A. HONOURS IN CLASSICS.

DRAMA: EURIPIDES BACCHAE.

TUESDAY, APRIL 9TH:—AFTERNOON, 2 TO 5.

1. Translate with notes:—

ὦ θαλάμευμά Κουρή-
των ζάθεοί τε Κρήτας
Διογενέτορες ἔναυλοι,
ἔνθα τρικόρυθες ἄντροις
βυρσότονον κύκλωμα
τόδε μοι Κορύβαντες ηὗρον·
ἀνὰ δὲ βάκχια συντόνῳ
κέρασαν ἁδυβόᾳ Φρυγίων
αὐλῶν πνεύματι, ματρός τε Ῥέας εἰς
χέρα θῆκαν, κτύπον εὐάσμασι Βακχᾶν
παρὰ δὲ μαινόμενοι Σάτυροι
ματέρος ἐξανύσαντο θεᾶς,
εἰς δὲ χορεύματα
συνῆψαν τριετηρίδων,
αἷς χαίρει Διόνυσος.
ἡδὺς ἐν ὄρεσσιν, ὃς ἂν
ἐκ θιάσων δρομαίων
πέσῃ πεδόσε. . .

2. Comment on:—

(*a*) ὃς πόλιν Σιδωνίαν λιπὼν ἐπύργωσ' ἄστυ Θηβαίων τόδε.

(β) ἡδὺ δὲ πᾶσαι σώμασιν παρειμένοι, with notes on Euripides' usage of cases.

(γ) πῶς γὰρ οὔ; τίς μοι φύλαξ ἦν, εἰ σὺ συμφορᾶς τύχοις,

(δ) πρὸς φάτναις δὲ ταῦρον εὑρὼν, οὗ καθεῖρξ' ἡμᾶς ἄγων. How far is the later identification of Dionysos with Rudra-Çiva justified?

3. Translate with notes:—

(i) θᾶσσον δὲ διεφοροῦντο σαρκὸς ἐνδυτὰ
ἢ σὲ ξυνάψαι βλέφαρα βασιλείοις κόραις.
Ms. σὺ ξυνάψαι prima manu. συνάψαις sec. manu.

(ii) τὸ σοφὸν οὐ φθονῶ· [Ms. φθόνω, φθόνῳ Ed. Ald.]
χαίρω θηρεύουσα τάδ' ἕτερα μεγάλα φανέρ' ἄγοντ' ἀεί
ἐπὶ τὰ καλὰ βίον,
ἥμαρ εἰς νύκτα τ' εὐαγοῦντ' εὐσεβεῖν, Ms. εὖ ἄγουντ'— εὖ ἄγοντ' Ed. Ald.
τὰ δ' ἔξω νόμιμα δίκας ἐκβαλόντα τιμᾶν θεούς,

(iii) λαβὼν γὰρ ἐλάτης οὐράνιον ἄκρον κλάδον
κατῆγεν, ἦγεν, ἦγεν εἰς μέλαν πέδον·
κυκλοῦτο δ' ὥστε τόξον ἢ κυρτὸς τροχὸς
τόρνῳ γραφόμενος περιφορὰν ἑλικοδρόμον.
Ms. περιφορᾶν ἕλκει δρόμον.
Discuss the omission of the augment in Euripides.

(iv) ἴσα δ' εἴς τε τὸν ὄλβιον [ἴσαν a manu. sec. C. Ald. Elms. Pal.]
τόν τε χείρονα δῶκ' ἔχειν
οἴνου τέρψιν ἄλυπον·
μισεῖ δ' ᾧ μὴ ταῦτα μέλει,

κατὰ φάος νύκτας τε φίλας
εὐαίωνα διαζῆν·
σοφὸν δ' ἀπέχειν παπίδα φρένα τε [Mss. σοφὰν σοφὸν Ed. Ald. σοφῶν δ' ἀπέχων Paley. σοφὰν δ' ἄπεχε Herm.]
περισσῶν παρὰ φωτῶν·
τὸ πλῆθος ὅ τι τὸ φαυλότερον
ἐνόμισε χρῆταί τε, τόδ' ἂν δεχοίμαν.

4. Translate :— εἴθε παῖς ἐμὸς
εὔθηρος εἴη, μητρὸς εἰκασθεὶς τρόποις,
ὅτ' ἐν νεανίαισι Θηβαίοις ἅμα
θηρῶν ὀριγνᾷτ'. ἀλλὰ θεομαχεῖν μόνον
οἷός τ' ἐκεῖνος.

Discuss (*a*) the character of the audience for which the Bacchae was composed. (*b*) The character of Teiresias and Kadmos in reference to a possible 'recantation.'

5. Write short notes on :—*οὐδὲν πρὸς Διόνυσον* —Agathon.

6. How far did Dancing obtain as a feature of the Chorus? Contrast the Dithyrambic Chorus with that of of Tragedy. Describe the development of Parodos and Exodos.

SESSIONAL EXAMINATIONS.

HISTORY HONOURS.

GREEK AUTHORS.

TUESDAY, APRIL 16TH:—9 TO 12 A.M.

Answer seven questions.

Value of 1, 2 and 3 = 18 marks each.
Value of 4, 5, 6 and 7 = 15 marks each.
Question 8 may be taken as alternative to 1, 2 or 3.
Question 9 may be taken as alternative to 4, 5, 6 or 7.

1. Trace the steps by which the discussion of justice in Plato's Republic develops into the account of the Ideal State.

What relation between Ethics and Politics is implied in this treatment of the subject?

2. Sketch the character and general policy, *either* of Themistocles, *or* of Pericles, as given variously in your authorities.

Themistocles in Herodotus, Thucydides and Plutarch.

Pericles in Thucydides and Plutarch.

3. What are the main arguments urged

a In defence

b In criticism

of the Athenian Empire, through the speeches in the stated books of Thucydides (I, II to chap: 65, VI, VII)? Express some judgment as to the soundness of any of these arguments.

4. Give an account according to Herodotus of, *either* the battle of Marathon t

or the bat,les of Thermopylae and Artemisium, noting any special difficulties arising out of the narrative, in either case.

5. *Either* describe the siege of Syracuse, as given in Thucydides VI and VII

or point out the main defects of strategy in Nicias' conduct of the Sicilian expedition.

6. What are the chief features of the battle of Salamis, in the versions of Herodotus and of Plutarch? Note especially the part played by Aristides.

7. Give some account *either* of the education of the Citizens in Plato's Republic, *or* of the decline of constitutions from the Ideal State.

Alternative Questions.

8. Contrast the historical methods of Herodotus and of Thucydides.

9. Discuss the Thesis "Philosophers must be Kings."

CLASSICAL HONOURS.

GREEK PRIVATE READINGS—VERSE.

THURSDAY, APRIL 18TH :—AFTERNOON, 2 TO 5.

(*A, B and C to be shown up in separate books.*)

A.—SOPHOCLES, TRACHINIAE.

1. Translate :—

(*a*) 102–111. *ποθουμένᾳ..... ..αἶσαν.*

(*b*) 267–273. *φωνεῖς δὲ.....πλακός.*

(*c*) 517–530. *τοτ' ἦν χερός .....ἐρήμα.*

(*d*) 695–704. *τὸ γὰρ κάταγμα. .ἀμπέλου.*

(*e*) 1053–1061. *πλευραῖσι..... .ἔδρασέ πω.*

2. Comment on :—

(*a*) *τὸ γὰρ ποθοῦν ἕκαστος ἐκμαθεῖν θέλων*
οὐκ ἂν μεθεῖτο, πρὶν καθ' ἡδονὴν κλύειν.

(*b*) *ἀκτή τις ἔσθ' Εὐβοιίς, ἔνθ' ὁρίζεται*
βωμοὺς τέλη τ' ἔγκαρπα Κηναίῳ Διί.

(*c*) *δεινοτάτῳ μὲν ὕδρας προστετακὼς*
φάσματι.

(*d*) *ἀλλ' ἐκδιδαχθῶ δῆτα δοσσεβεῖν, πάτερ ;*

B.—ARISTOPHANES, FROGS.

1. Translate and explain :—

(*a*) HP. *ἀλλ' ἔστιν ἀτραπὸς ξύντομος τετριμμένη,*
ἡ διὰ θυείας. ΔΙ. *ἆρα κώνειον λέγεις ;*
HP. *μάλιστά γε.*
ΔΙ. *ψυχράν γε καὶ δυσχείμερον·*
εὐθὺς γὰρ ἀποπήγνυσι τἀντικνήμια.
HP. *βούλει ταχεῖαν καὶ κατάντη σοι φράσω ;*
ΔΙ. *νὴ τὸν Δί', ὡς ὄντος γε μὴ βαδιστικοῦ·*

ΗΡ. καθέρπυσόν νυν ἐς Κεραμεικόν. ΔΙ. εἶτα τί;
ΗΡ. ἀναβὰς ἐπὶ τὸν πύργον τὸν ὑψηλὸν. ΔΙ. τί δρῶ;
ΗΡ. ἀφιεμένην τὴν λαμπάδ' ἐντεῦθεν θεῶ,
κἄπειτ' ἐπειδὰν φῶσιν οἱ θεώμενοι
εἶναι, τόθ' εἶναι καὶ σὺ σαυτόν.
ΔΙ. ποῖ; ΗΡ. κάτω.
ΔΙ. ἀλλ' ἀπολέσαιμ' ἂν ἐγκεφάλου θρίω δύο.
(b) ΧΑ. δοῦλον οὐκ ἄγω,
εἰ μὴ νεναυμάχηκε τὴν περὶ τῶν κρεῶν.
(c) ὃς ἑπτέτης ὢν οὐκ ἔφυσε φράτερας.
(d) ΑΙΑ. καὶ πῶς βασανίσω;
ΞΑ. πάντα τρόπον, ἐν κλίμακι
δήσας, κρεμάσας, ὑστριχίδι μαστιγῶν, δέρων,
στρεβλῶν, ἔτι δ' ἐς τὰς ῥῖνας ὄξος ἐγχέων,
πλίνθους ἐπιτιθεὶς, πάντα τἄλλα πλὴν πράσῳ
μὴ τύπτε τοῦτον μηδὲ γητείῳ νέῳ.
(e) ἔσται δ' ἱππολόφων τε λόγων κορυθαίολα νείκη,
σκινδαλάμων τε παραξόνια, σμιλεύματά τ' ἔργων,
φωτὸς ἀμυνομένου φρενοτέκτονος ἀνδρὸς
ῥήματ' ἱππαβάμονα.
φρίξας δ' αὐτοκόμου λοφιᾶς λασιαύχενα χαίταν,
δεινὸν ἐπισκύνιον ξυνάγων βρυχώμενος ἦσει
ῥήματα γομφοπαγῆ, πινακηδὸν ἀποσπῶν
γηγενεῖ φυσήματι.
(f) τουτουμενὶ Φορμίσιός Μεγαίνετός θ' ὁ Μανῆς,
σαλπιγγολογχυπηνάδαι, σαρκασμοπιτυοκάμπται,
οὑμοὶ δὲ Κλειτοφῶν τε καὶ Θηραμένης ὁ κομψός.
ΔΙ. Θηραμένης; σοφός γ' ἀνὴρ καὶ δεινὸς ἐς τὰ πάντα,
ὃς ἦν κακοῖς που περιπέσῃ καὶ πλησίον παραστῇ.
πέπτωκεν ἔτξω τῶν κακῶν, οὐ Χῖος, ἀλλὰ Κεῖος

(*g*) ἐγὼ δ' ἁ ἁλαινα προσέχουσ' ἔτυχον
ἐμαυτῆς ἔργοισι,
λίνου μεστὸν ἄτρακτον
εἰειειειειειλίσσουσα χεροῖν,
κλωστῆρα ποιοῦσ', ὅπως
κνεφαῖος εἰς ἀγορὰν
φέρουσ' ἀποδοίμαν·
ὁ δ' ἀνέπτατ' ἀνέπτατ' ἐς αἰθέρα
κουφοτάταις πτερύγων ἀκμαῖς.

(*h*) ΑΙΣ. πῶς οὖν τις ἂν σώσειε τοιαύτην πόλιν,
ᾗ μήτε χλαῖνα μήτε σισύρα συμφέρει;

2. Analyse the mutual criticism of the two poets. How far is it just on either side?

C.—THEOCRITUS, IDYLLS I, II, IV, XI, XV.

1. Translate:—

Ἔντοσθεν δὲ γυνά, τὶ θεῶν δαίδαλμα τέτυκται
ἀσκητὰ πέπλῳ τε καὶ ἄμπυκι. πὰρ δέ οἱ ἄνδρες
καλὸν ἐθειράζοντες ἀμοιβαδὶς ἄλλοθεν ἄλλος
νεικείουσ' ἐπέεσσι. τὰ δ' οὐ φρενὸς ἅπτεται αὐτᾶς·
ἀλλ ὅκα μὲν τῆνον ποτιδέρκεται ἄνδρα γελᾶσα,
ἄλλοκα δ' αὖ ποτὶ τὸν ῥιπτεῖ νόον. οἱ δ' ὑπ' ἔρωτος
δηθὰ κυλοιδιόωντες ἐτώσια μοχθίζοντι.
τὼς δὲ μετὰ γριπεύς τε γέρων πέτρα τε τέτυκται
λεπράς, ἐφ' ᾇ σπεύδων μέγα δίκτυον ἐς βόλον ἕλκει
ὁ πρέσβυς, κάμνοντι τὸ καρτερὸν ἀνδρὶ ἐοικώς·
φαίης κα γυίων νυν ὅσον σθένος ἐλλοπιεύειν·
ὧδε οἱ ᾠδήκαντι κατ' σὐχένα πάντοθεν ἶνες
καὶ πολιῷ περ ἐόντι, τὸ δὲ σθένος ἄξιον ἄβας.
τυτθὸν δ' ὅσσον ἄπωθεν ἁλιτρύτοιο γέροντος
πυρραίαις σταφυλαῖσι καλὸν βέβριθεν ἀλωά,
τὰν ὀλίγος τις κῶρος ἐφ' αἱμασιαῖσι φυλάσσει

ἥμενος· ἀμφὶ δέ μιν δυ' ἀλώπεκες, ἃ μὲν ἀμ' ὄρχως
φοιτῇ σινομένα τὰν τρώξιμον, ἃ δ' ἐπὶ πήρᾳ
πάντα δόλον κεύθοισα τὸ παιδίον οὐ πρὶν ἀνησεῖν
φατὶ πρὶν ἢ ἀκράτιστον ἐπὶ ξηροῖσι καθίξῃ.

What readings are found for πυρραίαις.

2. Translate :—

ΓΟ. Ὦ τᾶς ἀλεμάτα ψυχᾶς· μόλις ὔμιν ἐσώθη
Πραξινόα. πολλῶ μὲν ὄχλω, πολλῶν δὲ τεθρίππων·
παντᾷ κρηπῖδες, παντᾷ χλαμυδηφόροι ἄνδρες·
ἁ δ' ὁδὸς ἄτρυτος· τὺ δ' ἑκαστέρω, ὦ μέλ' ἀποικεῖς.
ΠΡ. Ταῦθ' ὁ πάραρος τῆνος· ἐπ' ἐσχατα γᾶς ἔλαβ' ἐνθὼν
εἰλέον, οὐκ οἴκησιν, ὅπως μὴ γείτονες ὦμες
ἀλλάλαις, ποτ' ἔριν, φθονερὸν κακόν, αἰὲν ὁμοῖος·
ΓΟ. Μὴ λέγε τὸν τεὸν ἄνδρα φίλα Δίνωνα τοιαῦτα
τῶ μικκῶ παρεόντος· ὄρη γύναι, ὡς ποθορῇ τυ.
θάρσει Ζωπυρίων, γλυκερὸν τέκος· οὐ λέγει ἀπφῦν.
ΠΡ. Αἰσθάνεται τὸ βρέφος, ναὶ τὰν πότνιαν. καλὸς ἀπφῦς.
κέπφος μὰν τῆνος τὰ πρόαν — λέγομες δὲ πρόαν θην
βάντα νίτρον καὶ φῦκος ἀπὸ σκανᾶς ἀγοράσδειν—
ἦνθε φέρων ἅλας ἅμιν, ἀνὴρ τρισκαιδεκάπηχυς.

B. A. HONORS IN CLASSICS.

GREEK PRIVATE READINGS.

HERODOTUS—ATTIC ORATORS—ARISTOTLE.

SATURDAY, APRIL 20TH :—MORNING, 9 TO 12.

(Note.—A, B and C to be shewn up in separate books).

A.—HERODOTUS VII.

I. Translate with comments :—

(a) Καὶ δὴ, τῶν δύο τοι τοῦ ἑτέρου εἰρημένου, τὸ ἕτερον
ἔρχομαι ἐρέων. γῆ δὲ πολεμίη τῇδέ τοι κατίσταται· εἰ

ἐθέλει τοι μηδὲν ἀντίξοον καταστῆναι, τοσούτῳ τοι γίνεται πολεμιωτέρη, ὅσῳ ἂν προβαίνῃς ἑκαστέρω, τὸ πρόσω αἰεὶ κλεπτόμενος. εὐπρηξίης γὰρ οὐκ ἔστὶ ἀνθρώποισι οὐδεμία πληθώρη. καὶ δή τοι, ὡς οὐδενὸς ἐναντιευμένου, λέγω τὴν χώρην, πλεῦνα ἐν πλεῦνι χρόνῳ γινομένην, λιμὸν τέξεσθαι. Ἀνὴρ δὲ οὕτω ἂν εἴη ἄριστος, εἰ βουλευόμενος μὲν ἀρρωδέοι, πᾶν ἐπιλεγόμενος πείσεσθαι χρῆμα, ἐν δὲ τῷ ἔργῳ θρασὺς εἴη.

(β) Ἀράβιοι δὲ ζειρὰς ὑπεζωσμένοι ἦσαν, τόξα δὲ παλίντονα εἶχον πρὸς δεξιὰ, μακρά. Αἰθίοπες δὲ παρδαλέας τε καὶ λεοντέας ἐναμμένοι, τόξα δὲ εἶχον ἐκ φοίνικος σπάθης πεποιημένα, μακρὰ, τετραπηχέων οὐκ ἐλάσσω, ἐπὶ δὲ καλαμίνους ὀϊστοὺς σμικρούς· ἀντὶ δὲ σιδήρου ἐπῆν λίθος ὀξὺς πεποιημένος, τῷ καὶ τὰς σφρηγῖδας γλύφουσι.

(γ) οἰκέουσί τε γὰρ οὔρεα ὑψηλὰ, ἴδῃσί τε παντοίῃσι καὶ χιόνι συνηρεφέα, καὶ εἰσὶ τὰ πολέμια ἄκροι, οὗτοι, οἳ τοῦ Διονύσου τὸ μαντήϊόν εἰσι ἐκτημένοι. τὸ δὲ μαντήϊον τοῦτο ἐστὶ μὲν ἐπὶ τῶν οὐρέων τῶν ὑψηλοτάτων· Βησσοὶ δὲ τῶν Σατρέων εἰσὶ οἱ προφητεύοντες τοῦ ἱροῦ, πρόμαντις δὲ ἡ χρέουσα, κατά περ ἐν Δελφοῖσι, καὶ οὐδὲν ποικιλώτερον.

(δ) Ὦ νήπιοι, ἐπιμέμφεσθε ὅσα ὑμῖν ἐκ τῶν Μενέλεῳ τιμωρημάτων Μίνως ἔπεμψε μηνίων δακρύματα, ὅτι οἱ μὲν οὐ συνεξεπρήξαντο αὐτῷ τὸν ἐν Καμίκῳ θάνατον γενόμενον, ὑμεῖς δὲ ἐκείνοισι τὴν ἐκ Σπάρτης ἁρπαχθεῖσαν ὑπ' ἀνδρὸς βαρβάρου γυναῖκα. Ταῦτα οἱ Κρῆτες ὡς ἀπενειχθέντα ἤκουσαν, ἔσχοντο τῆς τιμωρίης.

II. Comment on :—ἐς Σικανίην τὴν νῦν Σικελίην καλευμένην—ἑκὼν εἶναι—μηδίζειν—τέσσερες—τάμνω—κιθών—κοῦ.

—ATTIC ORATORS.

1. Translate :—

οὐ γὰρ μόνον, ὦ Ἀθηναῖοι, πρὸς γράμματα τὰ γεγραμ-

μένα δεῖ βλέποντας πρεσβεύειν ἡμᾶς, ἀλλὰ καὶ πρὸς τοὺς τρόπους τοὺς ὑμετέρους. ὑμεῖς γὰρ περὶ μὲν τῶν ἑτοίμων ὑμῖν ὑπονοεῖν εἰώθατε καὶ δυσχεραίνειν, τὰ δ' οὐκ ὄντα λογοποιεῖν ὡς ἔστιν ὑμῖν ἕτοιμα· κἂν μὲν πολεμεῖν δέῃ, τῆς εἰρήνης ἐπιθυμεῖτε, ἐὰν δέ τις ὑμῖν τὴν εἰρήνην πράττῃ, λογίζεσθε τὸν πόλεμον ὅσα ἀγαθὰ ὑμῖν κατειργάσατο· ὅπου καὶ νῦν ἤδη τινὲς λέγουσιν οὐ γιγνώσκειν τὰς διαλλαγὰς αἵτινές εἰσιν, τείχη καὶ νῆες εἰ γενήσονται τῇ πόλει· τὰ γὰρ ἴδια τὰ σφέτερ' αὐτῶν ἐκ τῆς ὑπερορίας οὐκ ἀπολαμβάνειν, ἀπὸ δὲ τῶν τειχῶν οὐκ εἶναι σφίσι τροφήν. ἀναγκαίως οὖν ἔχει καὶ πρὸς ταῦτ' ἀντειπεῖν.

What are the facts that occasioned this speech?

2. Translate with notes —

Ῥᾴδιον τοίνυν εἰδέναι ὅτι οὐδ' αὐτὸς Παγκλέων νομίζει ἑαυτὸν μὴ ὅτι Πλαταιέα εἶναι, ἀλλ' οὐδ' ἐλεύθερον· ὅστις γὰρ ἐβουλήθη βίᾳ ἀφαιρεθεὶς ἐνόχους καταστῆσαι τοὺς ἑαυτοῦ ἐπιτηδείους τοῖς βιαίοις μᾶλλον ἢ κατὰ τοὺς νόμους εἰς τὴν ἐλευθερίαν ἐξαιρεθεὶς δίκην λαβεῖν παρὰ τῶν ἀγόντων αὐτόν, οὐδενὶ χαλεπὸν γνῶναι ὅτι εὖ εἰδὼς ἑαυτὸν ὄντα δοῦλον ἔδεισεν ἐγγυητὰς καταστήσας περὶ τοῦ σώματος ἀγωνίσασθαι.

3. Translate :—

τῶν τε φιλοσοφιῶν οὐκ ἀποδοκιμάζειν μὲν οὐδὲ τὴν περὶ τὰς ἔριδας, ἀλλὰ νομίζειν εἶναι πλεονεκτικὴν ἐν ταῖς ἰδίαις διατριβαῖς, οὐ μὴν ἁρμόττειν οὔτε τοῖς τοῦ πλήθους προεστῶσιν οὔτε τοῖς τὰς μοναρχίας ἔχουσιν· οὐδὲ γὰρ συμφέρειν οὐδὲ πρέπειν τοῖς μεῖζον τῶν ἄλλων φρονοῦσιν οὔτ' αὐτοῖς ἐρίζειν πρὸς τοὺς συμπολιτευομένους οὔτε τοῖς ἄλλοις ἐπιτρέπειν πρὸς αὐτοὺς ἀντιλέγειν.

Explain the allusion in τὴν περὶ τὰς ἔριδας, and the opinions of the author elsewhere expressed. What was the present position of the recipient of the letter.

4. Translate explaining the historical allusions :—

ἄξιον δὲ καὶ τῶν θεῶν καὶ τῶν ἡρώων μνησθῆναι τῶν ἐκεῖνον τὸν τόπον κατεχόντων, καὶ μὴ περιορᾶν τὰς τιμὰς αὐτῶν καταλυομένας, οἷς ὑμεῖς καλλιερησάμενοι τοιοῦτον ὑπέστητε κίνδυνον, ὃς καὶ τούτους καὶ τοὺς ἄλλους ἅπαντας Ἕλληνας ἠλευθέρωσεν.

5. Comment on :—τοῖς φράτορσι γαμηλίαν εἰσήνεγκε — ἄρχειν εἰς τὰ Θεσμοφόρια — εἰς τοὺς φράτορας ἡμᾶς εἰσηγαγεν.

C.—ARISTOTLE, ETHICS I, II, X.

1. Translate and explain in reference to the context:—

(*a*) οὐκ ἔστιν ἄρα τὸ ἀγαθὸν κοινόν τι κατὰ μίαν ἰδέαν· ἀλλὰ πῶς δὴ λέγεται; οὐ γὰρ ἔοικε τοῖς γε ἀπὸ τύχης ὁμωνύμοις. ἀλλ' ἆρά γε τῷ ἀφ' ἑνὸς εἶναι ἢ πρὸς ἓν ἅπαντα συντελεῖν, ἢ μᾶλλον κατ' ἀναλογίαν; ὡς γὰρ ἐν σώματι ὄψις, ἐν ψυχῇ νοῦς, καὶ ἄλλο δὴ ἐν ἄλλῳ.

(*b*) δοκεῖ δὲ καὶ Εὔδοξος καλῶς συνηγορῆσαι περὶ τῶν ἀριστείων τῇ ἡδονῇ· τὸ γὰρ μὴ ἐπαινεῖσθαι τῶν ἀγαθῶν οὖσαν μηνύειν ᾠ̓ετο ὅτι κρεῖττόν ἐστι τῶν ἐπαινετῶν, τοιοῦτον δ' εἶναι τὸν θεὸν καὶ τἀγαθόν· πρὸς ταῦτα γὰρ καὶ τἆλλα ἀναφέρεσθαι.

(*c*) διὸ κατὰ μὲν τὴν οὐσίαν καὶ τὸν λόγον τὸν τὸ τί ἦν εἶναι λέγοντα μεσότης ἐστὶν ἡ ἀρετή, κατὰ δὲ τὸ ἄριστον καὶ τὸ εὖ ἀκρότης.

(*d*) εἰς τοὐναντίον δ' ἑαυτοὺς ἀφέλκειν δεῖ· πολὺ γὰρ ἀπάγοντες τοῦ ἁμαρτάνειν εἰς τὸ μέσον ἥξομεν, ὅπερ οἱ τὰ διεστραμμένα τῶν ξύλων ὀρθοῦντες ποιοῦσιν.

(*e*) διαφέρει δὲ ἡ ὄψις ἁφῆς καθαρειότητι, καὶ ἀκοὴ ὄσφρησις γεύσεως· ὁμοίως δὴ διαφέρουσι καὶ αἱ ἡδοναί, καὶ τούτων αἱ περὶ τὴν διάνοιαν, καὶ ἑκάτεραι ἀλλήλων·

δοκεῖ δ' εἶναι ἑκάστῳ ζῴῳ καὶ ἡδὺ ἡ οἰκεία, ὥσπερ καὶ ἔργον· ἡ γὰρ κατὰ τὴν ἐνέργειαν.

(*f*) τῶν δὲ σοφιστῶν οἱ ἐπαγγελλόμενοι λίαν φαίνονται πόρρω εἶναι τοῦ διδάξαι. ὅλως γὰρ οὐδὲ ποιόν τι ἐστὶν ἢ περὶ ποῖα ἴσασιν· οὐ γὰρ ἂν τὴν αὐτὴν τῇ ῥητορικῇ οὐδὲ χείρω ἐτίθεσαν, οὐδ' ἂν ᾤοντο ῥᾴδιον εἶναι τὸ νομοθετῆσαι συναγανόντι τοὺς εὐδοκιμοῦντας τῶν νόμων· ἐκλέξασθαι γὰρ εἶναι τοὺς ἀρίστους, ὥσπερ οὐδὲ τὴν ἐκλογὴν οὖσαν συνέσεως, καὶ τὸ κρῖναι ὀρθῶς μέγιστον, ὥσπερ ἐν τοῖς κατὰ μουσικήν.

———

CLASSICAL HONOURS.

TUESDAY, APRIL 19TH :—MORNING, 9 TO 12.

DEMOSTHENES DE FALSA LEGATIONE.

1. Translate and comment on :—

(*a*) § 13. καὶ μέχρι.....ἀπομνημονεύσειν.

(*b*) § 30. οὐ γὰρ .....πόθεν ;

(*c*) § 39. Ἀκούετ'.....λύσασθαι.

(*d*) § 51. καίτοι .....ἐγχερίσαιεν.

(*e*) § 103. διὰ τί ; ..... ὁπηνίκα βούλεται.
(Mss ἀπολωλέναι κρίνεται.)

(*f*) § 114. εἰ δὲ Φιλοκράτης..δείκνυντα.

(*g*) § 199. καὶ τοιαῦτα.....τοιοῦτος φαίνεται.

(*h*) § 255. Οὐ λέγειν.....λοιδορῇ.

(*i*) § 290. εἶθ' ὑπὲρ μὲν..... ἂν βούλεσθαι.

2. Annotate :—

(*a*) ἡ βουλὴ δὲ ἡ μὴ κωλυθεῖσα ἀκοῦσαι τἀληθῆ παρ' ἐμοῦ οὔτ' ἐπῄνεσε τούτους οὔτ' εἰς τὸ πρυτανεῖον ἠξίωσε καλέσαι.

(*b*) εὐφημότατ' ἀνθρώπων τούτοις παραδοῦναι γέγραφε τὸ ἱερὸν γράψας τοῖς Ἀμφικτύοσι παραδοῦναι.

(*c*) εἰ μὴ ταῖς παρ' Αἰσχίνου ῥηθείσαις ὑποσχέσεσι τοτ' ἐπιστεύσατε.

(*d*) τοιαῦτα πεπονθότες οἷα οὐδένες ἄλλοι τῶν Ἑλλήνων.

(*e*) δῆλον ἐστι σαφῶς ὅτι πᾶσα ἀπάτη καὶ τέχνη συνεσκευάσθη τοῦ περὶ Φωκέας ὀλέθρου.

Discuss the grammar of :—

(*a*) Τῷ δὲ μηδὲν ἑαυτῷ συνειδότι δεινὸν εἰσῄει, εἰ πονηρῶν ἔργων δόξει κοινωνεῖν.

(*b*) τὸ εὖ φρονεῖν αὐτῶν μιμεῖσθε.

4. Give a brief account of the circumstances which led to this speech.

5. Summarize the characteristic differences between English and Greek oratory (*a*) in general (*b*) in speeches before a jury.

LATIN.

FIRST YEAR.

HORACE, OVID AND SALLUST.

WEDNESNAY, APRIL 3RD :—MORNING, 9 TO 12.

A. HORACE AND OVID.

1. Translate :—

Hoc ego commodius quam tu, praeclare senator,
millibus atque aliis vivo. quacunque libido est,
incedo solus: percontor quanti olus ac far;
fallacem Circum vespertinumque pererro
saepe Forum; adsisto divinis; inde domum me
ad porri et ciceris refero laganique catinum;
deinde eo dormitum, non sollicitus, mihi quod cras
surgendum sit mane, obeundus Marsya, qui se
vultum ferre negat Noviorum posse minoris.
ad quartam iaceo: post hanc vagor; aut ego lecto
aut scripto, quod me tacitum iuvet, ungor olivo,
non quo fraudatis immundus Natta lucernis.
ast ubi me fessum sol acrior ire lavatum
admonuit, fugio Campum lusumque trigonem.
pransus non avide, quantum interpellet inani
ventre diem durare, domesticus otior. haec est
vita solutorum misera ambitione gravique;
his me consolor victurum suavius, ac si
quaestor avus, pater atque meus patruusque fuisset.

2. Translate :—

(*a*) Hanc ego cum vellem genero dare, tempora taedis
apta requirebam, quaeque cavenda forent.
(*b*) Festa dies illis, qui lina madentia ducunt
quique tegunt parvis aera recurva cibis.
(*c*) Scilicet ignotum est, quae sit fortuna meorum,
et dolor hic animi voce querentis eget.

Explain clearly the force of "*Scilicet.*" Who is speaking ?

(*d*) Somnus abit, quaeruntque novis ambagibus acti,
perdere quam nolint et iubeantur opem.
Why is "*nolint*" subjunctive ?

(*v*) Iam, Phryx, a nupta quereris, Tithone, relinqui,
et vigil eois Lucifer exit aquis.
Who is the "*nupta*" ?

(*f*) "Quid petis hinc"—cognorat enim "matertera Bacchi ?
an numen, quod me, te quoque vexat"? ait.
Who is speaking and whom is he addressing ?

(*g*) Quaeritur in scena cava tibia, quaeritur aris :
ducit supremos nenia nulla toros.

(*h*) At Clymenus Clothoque dolent ; haec fila reneri,
hic fieri regni iura minora sui.

Who was the youth brought to life by Aesculapius, and what was his new name ?

(*i*) Nupta fuit quondam matertera Caesaris illi.
O decus, o sacra femina digna domo,
Show the relationship to Caesar by a tree.

3. Translate :—

(*a*) Sed, quod non desit, habentem
quae poterunt unquam satis expurgare cicutae,
ni melius dormire putem quam scribere versus ?

(*b*) Parcus ob heredis curam nimiumque severus
assidet insano.

(*c*) Adspice Plautus
quam non adstricto percurrat pulpita socco.

(*d*) Ille Philippo
excusare laborem et mercenaria vincla.

(*e*) Officiosaque sedulitas et opella forensis
adducit febres et testamenta resignat.

(*f*) Ergo
sermo oritur, non de villis domibusve alienis
nec male necne Lepos saltet.

4. (*a*) Scan the first four lines in Question 2 above.

(*b*) State what irregularities there are in the scansion of the following lines :—

Invertunt Allifanis vinaria tota.
Cantabat maestis tibia funeribus.
Leucothea Grais Matuta vocabere nostris.
Educet at sanguis ille sororis erat.

(*c*) Distinguish between, ēducet and ĕducet, ācer and ăcer, querēris and querĕris, vīres and vires, sōlo and sŏlo, pedēs and pedĕs, sēdes and sĕdes, lābor and labor.

B. SALLUST. CATILINE.

1. Nam gloriam honorem imperium bonus et *ignavos* aeque sibi exoptant; sed ille vera *via* nititur, huic quia bonae artes desunt, dolis atque fallaciis contendit. Avaritia *pecuniae* studium habet, quam nemo sapiens concupivit: ea quasi venenis malis imbuta corpus animumque virilem effeminat.

Ni virtus fidesque vostra *spectata* mihi forent, nequiquam opportuna res *cecidisset*: spes magna dominatio in manibus frustra fuissent; neque ego per ignaviam aut vana ingenia incerta pro certis *captarem*. Sed quia multis et magnis tempestatibus vos cognovi fortis fidosque mihi, eo animus ausus est maximum atque pulcerrumum facinus incipere, simul quia *eadem quae* mihi bona malaque esse intellexi. Nam idem velle atque idem nolle, *ea* demum firma amicitia est.

2. Explain (*a*) the peculiar spelling in the forms *ignavos*, *vostra*, *maxumum*; (*b*) the case of *via*, *pecuniae*, *eadem quae*; (*c*) the mood and tense of *cecidisset*, *captarem*, *velle* atque *nolle*; (*d*) the agreement of *spectata* and *ea*.

How is the exact meaning of *ignaviam* and *vana ingenia* determined by the context?

3. Translate and remark on the historical events alluded to:

Bello Macedonico, quod cum Perse gessimus, Rhodiorum civitas magna atque magnifica, quae populi Romani opibus creverat, infida et advorsa nobis fuit; sed postquam bello confecto de Rhodiis consultum est, maiores nostri, ne quis divitiarum magis quam iniuriae causa bellum inceptum diceret, impunitos eos dimisere. Item bellis Punicis omnibus, cum saepe Carthaginiensibus in pace et per inducias multa nefaria facinora fecissent, numquam ipsi per occasionem talia fecere; magis quid se dignum foret, quam quid in illos iure fieri posset, quaerebant.

4. Write brief notes on the following:

(*a*) In liberis custodiis; (*b*) lege Plautia de vi; (*c*) gladiatoriae amiliae; (*d*) Tullianum; (*e*) libri Sibyllin

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FIRST YEAR.

ROMAN HISTORY.

WEDNESDAY, APRIL 3RD:—AFTERNOON, 2 TO 3

Write upon any *four* of the following topics:

1. The Relative Strength of Rome and Carthage.

2. Battle at the Aegatian Islands.

3. Tho Fall and Sack of Syracuse.

4. A brief account of the Third Punic War.

5. Name leading events of the following years: B.C. 262, 260 256, 217, 216, 147.

FIRST YEAR

LATIN PROSE AND UNSEEN.

WEDNESDAY, APRIL 3RD:—AFTERNOON, 3 TO 5.30.

Translate into Latin:—

1. He said that the enemy must not be spared.

2. He said that he could not be persuaded that the city would be taken.

3. No one knows why he went away and when he will return.

4. Orders were given to set fire to the crops.

5. Having arrived at Rome, he set out the next day to Puteoli.

6. Having captured the town the Romans are said to have laid aside their bows and quivers.

7. I gave 320 dollars for that horse.

8. Do not approach the city.

9. Do you remember that a lamprey served up on a dish and floating in shrimp sauce was placed on the table?

10. We were informed that the soldiers had pitched their camp at Baiae and that the King would soon order them to set out.

11. He persuaded us not to attack Rome, telling us that it would never be taken.

12. Plautius ordered the faces of the flute-players to be concealed with masks for the purpose of deceiving the Romans (use Gerundive.)

FOR UNSEEN.

Rebus autem afflictis, cum patriam obsideri audisset, non quaesivit ubi ipse tuto viveret, sed unde praesidio posset esse civibus suis. Itaque contulit se ad Pharnabazum, satrapem Ioniae et Lydiae eundemque generum regis et propinquum; apud quem ut multum gratia valeret, multo labore multisque effecit periculis. Nam cum Lacedaemonii Atheniensibus devictis in societate non manerent quam cum Artaxerxe fecerant, Agesilaumque bellatum misissent in Asiam, maxime impulsi a Tissapherne, qui

ex intimis regis ab amicitia eius defecerat et cum Lacedaemoniis coierat societatem, hunc adversus Pharnabazus habitus est imperator, re quidem vera exercitui praefuit Conon, eiusque omnia arbitrio gesta sunt. Hic multum ducem summum Agesilaum impedivit saepeque eius consiliis obstitit; neque vero non fuit apertum, si ille non fuisset, Agesilaum Asiam Tauro tenus regi fuisse erepturum. Qui posteaquam domum a suis civibus revocatus est, quod Boeotii et Athenienses Lacedaemoniis bellum indixerant, Conon nihil setius apud praefectos regis versabatur hisque omnibus magno erat usui.

INTERMEDIATE EXAMINATION.

LATIN.

LIVY, *Book XXII;* HORACE, *Odes;* QUINTILIAN, *Book X*, §§ 37-131.

WEDNESDAY, APRIL 3RD:—MORNING, 9 TO 12 A.M.

N.B.—*Answers to A and B are to be written in separate books.*

A.

I. 1. Translate:

Is iuvenis, ut primum ex eo genere quaestus pecunia a patre relicta animos ad spem *liberalioris* fortunae fecit, *togaque et forum* placuere, proclamando pro sordidis hominibus causisque adversus rem et famam bonorum primum in notitiam populi, deinde ad honores pervenit. Quaestura quoque et *duabus aedilitatibus*, *plebeia* et *curuli*, postremo et praetura perfunctus, iam ad consulatus spem cum attolleret animos, haud parum callide auram favoris popularis ex dictatoria invidia petiit *scitique plebis* unus gratiam tulit.

2. (*a*) Write brief notes on the words and phrases in italics. (*b*) One MS reads *quaesturaque* instead of *quaestura quoque*. What change of meaning would this involve?

3. Translate and write brief explanatory notes on: (*a*) Si quis clepsit, ne populo scelus esto, neve cui cleptum erit. (*b*) Ducentis quadraginta septem cum plures Romanus quam Poenus receperat. (*c*) Ita obtinuit, ut legiones, sicut consulibus mos esset, inter se dividerent. (*d*) Fabiana se acies repente velut caelo demissa ad auxilium ostendit. (*e*) Itaque plebeiscitum, quo oneratus sum magis quam honoratus, primus antiquo abrogoque et, quod tibi mihique exercitibusque his tuis, servato ac conservatori, sit felix, sub imperium auspiciumque tuum redeo et signa haec legionesque restituo.

II. 4. Translate:

(*a*) Persicos odi, puer, apparatus;

Displicet nexae philyra coronae;
Mitte sectari, rosa quo locorum
Sera moretur.
Simplici myrto nihil allabores
Sedulus curo: neque te ministrum
Dedecet myrtus neque me sub arta
Vite bibentem.

(*b*) Non his iuventus orta parentibus
Infecit aequor sanguine Punico,
Pyrrhumque et ingentem cecidit
Antiochum Hannibalemque dirum;
Sed rusticorum mascula militum
Proles, Sabellis docta ligonibus
Versare glebas et severae
Matris ad arbitrium recisos
Portare fustes, sol ubi montium
Mutaret umbras et iuga demeret
Bobus fatigatis, amicum
Tempus agens abeunte curru.

(*c*) Divis orte bonis, optime Romulae
Custos gentis, abes iam nimium diu;
Maturum reditum pollicitus patrum
Sancto concilio redi.

5. From what ode is extract (*b*) taken? Explain the occasion of this ode, and give an outline of the thought.

6. Scan one stanza of each of the extracts from Horace, name and briefly describe the metre.

7. Write brief notes on any *three* points requiring explanation in 4 (*a*) (*b*) and (*c*), and on the following: Lesboum Barbiton; Syrtes aestuosae; favete linguis; Tempe.

B.

1. Translate:—

(*a*) At ad erumpendum e castris defuit animus, ad tutanda fortiter castra animum habuerunt; dies noctesque aliquot obsessi vallum armis, se ipsi tutati vallo sunt; tandem ultima ausi passique, cum omnia subsidia vitae deessent affectisque fame viribus arma iam sustinere nequirent necessitatibus magis humanis quam armis victi sunt. orto sole hostis ad vallum accessit; ante secundam horam, nullam fortunam certaminis experti; tradiderunt arma ac se ipsos. haec vobis istorum per biduum militia fuit. cum in acie stare ac pugnare decuerat, tum in castra refugerunt; cum pro vallo pugnandum erat, castra tradiderunt, neque in acie neque in castris utiles.

(*b*) Tunc et elegeam vacabit in manus sumere, cuius princeps habetur Callimachus, secundas confessione plurimorum Philetas occupavit. Sed dum adsequimur illam firmam, ut dixi, facilitatem, optimis adsuescendum est et multa magis quam multorum lectione formanda mens et ducendus color. Itaque ex tribus receptis Aristarchi iudicis scriptoribus iamborum ad ἕξιν maxime pertinebit unus Archilochus. Summa in hoc vis elocutionis cum validae tum breves vibrantesque sententiae, plurimum sanguinis atque nervorum, adeo ut videatur quibusdam, quod quoquam minor est, materiae esse, non ingenii vitium.

2. Quote—in the original if you can—Quintilian's estimate of:—Aeschylus, Menander, Theocritus, Lucan, Xenophon, Asinius Pollio, Seneca Lysias.

INTERMEDIATE EXAMINATION.

LATIN.

WEDNESDAY, APRIL 3RD:—AFTERNOON, 2 TO 4.30

Write I and II in separate books.

I. LATIN PROSE COMPOSITION.

After the battle Hannibal selected ten of the prisoners, whom he sent to he senate at Rome. When a hearing before the senate had been granted, them, the leader of the delegation pleaded the cause of the captives with eloquence. He reminded the senate that prisoners had been redeemed with Roman gold in other wars.

Manlius, in reply, accused them of base cowardice; *"for," he said: "if they had listened to their brave, fellow-soldier, Sempronius, they would never had been captured. Did they have courage enough either to save themselves or to defend their camp? Nay, rather, they had hid in their camps for two whole days and waited for Hannibal to demand the surrender of themselves and all they had." And so he moved that they should neither be ransomed from the state treasury, nor should money be loaned to any who might wish to save them. All voted unanimously for this motion.

**Obliqua Oratio.*

I. TRANSLATION AT SIGHT.

1. Sunt delicta tamen, quibus ignovisse velimis,
Nam neque chorda sonum reddit, quem vult manus et mens,
Poscentique gravem persaepe remittit acutum;
Nec semper feriet quodcunque minabitur arcus.
Verum ubi plura nitent in carmine, non ego paucis
Offendar maculis, quas aut incuria fudit
Aut humana parum cavit natura. Quid ergo est?

Ut scriptor si peccat idem librarius usque,
Quamvis est monitus, venia caret; ut citharoedus
Ridetur, chorda qui semper oberrat eadem,
Sic mihi, qui multum cessat, fit Choerilus ille
Quem bis terve bonum cum risu miror; et idem
Indignor, quandoque bonus dormitat Homerus.
Verum operi longo fas est obrepere somnum.

2. Non sine causa tamen difficilius semper est creditum, quod Cicero saepe testatur, defendere quam accusare. Primum quod est res illa simplicior, proponitur enim uno modo, dissolvitur varie; cum accusator satis sit plerumque, verum esse id quod obiecerit: patronus neget, defendat, transferat, excuset, deprecetur, molliat, minuat, avertat, despiciat, derideat. Quare inde recta fere atque, ut sic dixerim, clamosa est actio hinc mille flexus et artes desiderantur. Tum accusator praemeditata plera que domo affert, patronus etiam inopinatis frequenter occurrit. Accusato dat testem, patronus ex re ipsa refellit. Accusator criminum invidia, ve si falsa sint, materiam dicendi trahit, de parricidio, sacrilegio, maiestate quae patrono tantum neganda sunt.

SECOND YEAR.

ROMAN HISTORY AND LITERATURE.

WEDNESDAY, APRIL 3RD:—AFTERNOON, 4.30 TO 5.30.

Candidates are expected to answer three questions from division A and a in B.

(*Not more than six questions to be answered.*)

A.

1. Sketch the career of Gaius Gracchus and his chief measures for r form.

2. Describe the causes of the Marsic War, and give a brief account the same.

3. Give the leading events of the years B.C. 88-86.

4. What was the Gabinian Law? How and when was it carried? Wi what results?

5. Give an account of Lucullus' campaign in the East.

B.

1. Briefly characterise the main points of contrast and comparison b tween the literature of Rome and that of Greece.

2. Write a short sketch of the history of Latin Comedy with special reference (*a*) to its Italic origin, and (*b*) to its obligations to Greek Comedy.

2. To what type of poetry do Virgil's Georgics belong? Mention and characterise his predecessors in this branch, both Roman and Greek.

THIRD YEAR.

LATIN.

MONDAY, APRIL 15TH:—AFTERNOON, 2 TO 3.

PROPERTIUS (*Selections*).

1. Translate:—

(*a*) Testor maiorum cineres tibi, Roma, colendos,
sub quorum titulis, Africa, tonsa iaces,
et Persem proavi stimulantem pectus Achilli
quique tumens proavo fregit Achille domos,
me neque censurae legem mollisse nec ulla
labe mea uestros erubuisse focos.

(*b*) Arma tuli quondam et, memini, laudabar in illis:
corbis in imposito pondere messor eram.
Sobrius ad lites: at cumst imposta corona,
clamabis capiti uina subisse meo.

(*c*) Nam quis equo pulsas abiegno nosceret arces,
fluminaque Haemonio cominus isse viro,
Idaeumque Simoenta Iovis cunabula parvi,
Hectora per campos ter maculasse rotas?

2. Another reading in (*a*) is as follows:

Et Persen proavi simulantem pectus Achillis
Quique tuas proavus fregit, Achille, domos.

Translate this reading in connection with the context. What two interpretations are given to "sobrius ad lites"? *Iovis cunabula parvi*. What conjectural reading is preferred by Postgate? Give his reasons.

3. Translate with brief notes:

(*a*) Quicumque ille fuit puerum qui pinxit Amorem,
nonne putas miras hunc habuisse manus?
Hic primum uidit *sine sensu* uivere amantes
et leuibus curis magna perire bona.

(*b*) Talia Calliope, lymphisque a fronte petitis
ora *Philetaea* nostra rigauit aqua,

(*c*) *Exiguo sermone* fores nunc, *Ilion*, et tu
Troia, bis *Oetaei* numine capta dei.

(*d*) Et Veneris dominae volucres, mea turba, columbae
tingunt *Gorgone* o punica rostra lacu,
diversaeque nouem sortitae *uira* puellae
exercent teneras in sua dona manus.

THIRD YEAR.

ROMAN LIFE.

MONDAY, APRIL 15:—4 TO 5 P. M.

1. Define the terms *patria potestas*, *dominica potestas*, *hospitium*, *sportula*, *bulla*, *Apotheosis*, *conclamatio*.

2 What are the sources of our information as to the plan and arrangement of the ancient Roman House? Name the separate parts of the house and their uses.

3. Describe the relation of *cliens to patronus*.

4. Give a description of a Roman dinner, and of the *triclinium*.

5. Why did the Romans attack the highest importance to the due observance of funeral rites and the raising of monuments to the dead? Briefly describe the tombs of Metella Caecilia and Hadrian.

THIRD YEAR.

HISTORY OF ROMAN LITERATURE.

1. State any features which appear to you characteristic of Roman Literature generally.

2. Distinguish between the mime and the Fabula Atellana. What remains have we of the former.

3. Give a short account of the Roman historians who wrote in Latin, who preceded Sallust.

4. Give a brief critical estimate of Catullus *or* Lucilius.

5. What important events in Cicero's life fall in the period 58 to 49? What speeches belong to this period?

6. Enumerate the plays of Plautus and say a few words about the literary value of this writer.

7. Distinguish between the Attic and Asiatic styles of oratory and the position of the two at Rome during the later years of Cicero's life.

B. A. ORDINARY AND THIRD YEAR.

LATIN.

WEDNESDAY, APRIL 3RD, 1901:—9 TO 11 A.M.

A. PLINY, SELECT LETTERS.

1. Translate:—

Fuerunt alii similis amentiae quos, quia cives Romani erant, adnotavi in urbem remittendos. Mox ipso tractatu, ut fieri solet, diffundente se crimine, plures species inciderunt. Propositus est libellus sine auctore multorum nomina continens. Qui negabant esse se Christianos aut fuisse, cum praeeunte me deos appellarent et imagini tuae, quam propter hoc iusseram cum simulacris numinum adferri, ture ac vino supplicarent, praeterea male dicerent Christo, quorum nihil posse cogi dicuntur qui sunt re vera Christiani, dimittendos esse putavi.

2. Translate with explanatory notes:

(*a*) Nam si quem interroges "hodie quid egisti?" respondeat "*officio togae virilis* interfui, sponsalia aut nuptias frequentavi, ille me *ad signandum* testamentum, ille *in advocationem*, ille *in consilium* rogavit."

(*b*) Modo nuntiatus est *Silius Italicus* in Neapolitano suo inedia finisse vitam. Erat ille natus insanabilis clavus, cuius taediso ad mortem in revocabili constantia decucurrit, usque ad supremum diem beatus et felix, nisi quod minorem ex liberis duobus amisit, sed maiorem melioremque florentem atque etiam consularem reliquit.

(*c*) Quin etiam in hac novissima valetudine veritus ne forte inter *quinqueviros* crearetur, qui *minuendis publicis sumptibus* iudicio senatus constituebantur, cum illi tot amici senes consularesque superessent, me huius aetatis per quem excusaretur elegit, his quidem verbis "etiam si filium haberem, tibi mandarem."

Point out two phrases of ambiguous meaning in this passage.

B. TACITUS, HISTORIES, BK. I.

1. Translate:

Haud facile dictu est, legati Helvetiorum minus placabilem imperatorem an militem invenerint. Civitatis excidium poscunt, tela ac manus in ora legatorum intentant. Ne Vitellius quidem verbis et minis temperabat, cum Claudius Cossus, unus ex legatis, notae facundiae, sed dicendi artem apta trepidatione occultans atque eo validior militis animum mitigavit, ut est mos vulgo, mutabilem subitis et tam pronum in misericor-

diam quam inmodicus saevitia fuerat : effusis lacrimis et meliora constantius postulando impunitatem salutemque civitati impetravere.

2. Write explanatory notes on *falsi Neronis, Curtii lacum, speculatores. maiestas, praefectus urbi, fiscus, praetor peregrinus, socii novales.*

3. Translate with brief comments on grammatical construction :

(*a*) loco libertatis erit quod *eligi* coepimus ; et finita Iuliorum domo optimum quemque adoptio inveniet.

(*b*) Vetus in familia nobilitas, magnae opes : ipsi medium ingenium, magis *extra* vitia quam cum virtutibus. *Famae* nec incuriosus nec venditator ; pecuniae alienae non appetens, suae parens, publicae avarus. Amicorum libertorumque, ubi in bonos *incidisset*, sine reprehensione patiens, si mali *forent*, usque ad culpam ignarus.

(*c*) Curam navium Moschus libertus retinebat ad observandam honestiorum fidem immutatus. Sed plurima fides Licinio Proculo praetorii praefecto. Is urbanae militiae impiger, bellorum insolens, auctoritatem Paulini, vigorem Celsi, maturitatem Galli, ut cuique erat, criminando, quod facillimum factu est, pravus et callidus bonos et modestos anteibat.

B. A. ORDINARY AND THIRD YEAR.

LATIN.

WEDNESDAY, APRIL 3RD :—MORNING, 11 TO 12.

LUCRETIUS.

1. Translate :

Nec nimis solis maior rota nec minor ardor
esse potest, nostris quam sensibus esse videtur,
nam quibus e spatiis eumque ignes lumina possunt
adicere et calidum membris adflare vaporem,
nil illa his intervallis de corpore libant
flammarum, nil ad speciem est contractior ignis.
proinde, calor quoniam solis lumenque profusum
perveniunt nostros ad sensus et loca mulcent,
forma quoque hinc solis debet filumque videri,
nil adeo ut possis plus aut minus addere, vere.
lunaque sive notho fertur loca lumine lustrans
sive suam proprio iactat de corpore lucem,
quidquid id est, nilo fertur maiore figura
quam nostris oculis qua cernimus esse videtur.
nam prius omnia, quae longe semota tuemur
aera per multum, specie confusa videntur
quam minui filum, quapropter luna necesse est
quandoquidem claram speciem certamque figuram

praebet, ut est oris extremis cumque notata
quantaque quantast hinc nobis videatur in alto.

Wherever necessary, show by a literal translation that you understand the construction.

2. Translate, adding a comment where necessary :—
(*a*) Proinde sine incassum defessi sanguine sudent.
(*b*) Res itaque ad summam faecem turbasque redibat.
(*c*) Ne quid ob admissum foede dictumve superbe
poenarum grave sit solvendi tempus adultum.
(*d*) Sic alid ex alio peperit discordia tristis.
(*e*) Inque dies magis in montem succedere silvas
cogebant.
(*f*) At, credo, in tenebris vita ac maerore iacebat.
(*g*) Adsiduusque geli casus.
(*h*) Denique non armis opus est, non moenibus altis,
qui sua tutentur.
(*i*) sed primum quicquid aquai
tollitur in summaque fit ut nil umor abundet.
(*k*) Denique iam tuere hoc.
(*l*) Quod genus Idaeis fama est a montibus altis
dispersos ignes orienti lumine cerni.
(*m*) Propter signiferi posituram totius orbis.
(*n*) Dum loca luminibus propriis inimica per exit.
(*o*) Tunc et amicitiem coeperunt iungere aventes.
(*p*) Omnia nativo ac mortali corpore constant.

3. Say a few words on the manuscripts and editors of Lucretius.

4. Comment briefly on the rhythm or scansion of the following, noting any divergence from the practice of Virgil :—
(*a*) Aere solum terrae tractabant aereque belli
(*b*) Quod genus in nobis quaedam licet in statione.
(*c*) Cancri se ut vertat metas ad solstitiales.
(*d*) Lunaque mensibus id spatium videatur obire.
(*e*) Paulatim solem cum posterioribu' signis.
(*f*) Quae faciunt ignes interstingui atque perire.
(*g*) Conseque quoque jam redeunt ex ordine certo.
(*h*) Reccidere adsidue quoniam fluere omnia constat.

B. A. ORDINARY AND THIRD YEAR.

LATIN PROSE AND UNSEEN.

WEDNESDAY, APRIL 3RD :—AFTERNOON 3 TO 5.30

FOR LATIN PROSE.

Pompey's plans were formed with great skill and judgment and were

crowned with complete success. In forty days he cleared the western sea of pirates and restored communication between Spain, Africa and Italy. He then followed the main body of the pirates to their strongholds on the coast of Cilicia, and, after defeating their fleet, he induced a great part of them, by promises of pardon, to surrender to him. Many of these he settled at Soli, which was henceforward called Pompeiopolis. The second part of the campaign occupied only forty-nine days, and the whole war was brought to a conclusion in the course of three months; so that, to adopt the panegyric of Cicero, "Pompey made his preparations for the war at the end of the winter, entered upon it at the commencement of spring, and finished it in the middle of the summer."

FOR UNSEEN.

Ipse inflammatus scelere et furore in forum venit. ardebant oculi: toto ex ore crudelitas eminebat. exspectabant omnes quo tandem progressurus aut quidnam acturus esset: cum repente hominem proripi atque in foro medio nudari ac deligari et virgas expediri iubet clamabat ille miser se civem esse Romanum, municipem Cosanum; meruisse cum L. Pretio splendidissimo equite Romano, qui Panormi negotiaretur, ex quo haec Verres scire posset. Tum iste se comperisse ait, eum speculandi caussa in Siciliam ab ducibus fugitivorum esse missum: cuius rei neque index neque vestigium aliquod neque suspicio cuiquam esset ulla: deinde iubet undique hominem vehementissime verberari. Caedebatur virgis in medio foro Messanae civis Romanus, iudices; cum interea nullus gemitus, nulla vox alia illius miseri, inter dolorem crepitumque plagarum audiebatur, nis haec, CIVIS ROMANUS SUM.

CIC. IN VERREM, Act II., Lib. V. c. 62.

B. A. ORDINARY.

ROMAN HISTORY.

WEDNESDAY, APRIL 3RD, 1901:—AFTERNOON, 2 TO 3.

N.B.—Brevity is recommended.

1. Give a genealogical tree showing the relationship to one another of the emperors from Augustus to Nero, and also introducing Rubellius Blandus, Antonia Minor, Scribonia.

2. In what respect are the following connected with the history of the time:—Cassius Chaerea, Mucianus, Quintilius Varus, Decebalus, Corbulo, Julius Civilis, Cestius Gallus, Archelaus, Tigellinus, Burrus, Fabius Valens, Massa Baebius.

3. Describe the steps by which Augustus consolidated his power.

4. Name any reforms which Augustus introduced into the army.

5. Into what provinces was the Roman empire divided in the reign of Augustus? Into what classes were they divided and what provinces fell into each group?

6. A brief estimate of the character of Gaius, Tiberius, Claudius and Otho.

B. A. HONOURS.

LATIN.

TACITUS, *Annals* i.-iv.: LIVY, I.

SATURDAY, 6TH APRIL:—MORNING, 9 TO 12.

A.

I. Translate:—

Tacitus Annals i, 17 (in part).
" " iii, 4,
" " iv, 52 (in part.)

II: Translate and comment on:—

(*a*) iuxta periculoso ficta seu vera promeret.

(*b*) eam condicionem esse imperandi ut non aliter ratio constet quam si uni reddatur.

(*c*) neque imperatorem auguratu et vetustissimis caerim oniis praeditum adtrectare feralia debuisse.

(*d*) cuncta discordiis civilibus fessa nomine principis sub imperium accepit.

(*e*) caelestes religiones decernuntur.

(*f*) breves et infaustos populi Romani amores.

(*g*) Achaiam ac Macedoniam onera deprecantes levari in praesens proconsulari imperio tradique Caesari placuit.

(*h*) Nec dubium habebat se delectum qui Suriae imponeretur ad spes Germanici coercendas.

(*i*) erantque plures simul imperatores nec super ceterorum aequalitatem.

III. (1) Sketch the character of Tiberius as represented by Tacitus.

(2) What was the *Lex Maiestatis?* Trace the gradual enlargement of its sphere.

(3) Mention some debates in the Senate on matters relating to morals manners or religion. How far do these indications enable you to gauge the historian's personal sympathies?

(4) Characterise the historical method and style of Tacitus, especially as compared with that of Livy.

II. Translate and comment on : —

(1) Nobilemque una imagine Numae esse.

(2) Locum qui nunc saeptis descendentibus inter duos lucos est asylum aperit.

(3) Acceperunt relationem patres.

(4 Popularis iam esse dissuasor et intercessor legis agrariae coeperat.

5 Iupiter pater ..... uti tu signa nobis certa ad clarassis inter eos fines quos feci.

III. (1) Why is Livy's First Book considered unhistorical? Can you explain the origin of any of the stories he relates?

(2) Give some account of the chief writers to whom Livy appears to have been indebted in the earlier part of his History. What other sources had he open to him?

B.

I. Translate :

a) Fremere deinde plebs multiplicatam servitutem, centum pro uno domino factos; nec ultra nisi regem et ab ipsis creatum videbantur passuri. Cum sensissent ea moveri patres, offerendum ultro rati quod amissuri erant, ita gratiam ineunt, summa potestate populo permissa, ut non plus darent juris quam detinerent. Decreverunt enim, ut, cum populus regem jussisset, id sic ratum esset, si patres auctores fierent. Hodie quoque in legibus magistratibusque rogandis usurpatur idem jus vi adempta : priusquam populus suffragium ineat, in incertum comitiorum eventum patres auctores fiunt. Tum interrex contione advocata "quod bonum faustum felixque sit" inquit, "Quirites, regem create : ita patribus visum est. Patres deinde, si dignum qui secundus ab Romulo numeretur crearitis, auctores fient." Adeo id gratum plebi fuit, ut, ne victi beneficio viderentur, id modo sciscerent juberentque, ut senatus decerneret qui Romae regnaret.

(*b*) Itaque Pometinae manubiae, quae perducendo ad culmen operi destinatae erant, vix in fundamenta suppeditavere. Eo magis Fabio, praeterquam quod antiquior est, crediderim quadraginta ea sola talenta fuisse, quam Pisoni, qui quadraginta milia pondo argenti seposita in eam rem scribit, quippe summam pecuniae neque ex unius tum urbis praeda sperandam, et nullius ne horum quidem magnificentiae operum fundamenta non exsuperaturam. Intentus perficiendo templo fabris undique ex Etruria accitis non pecunia solum ad id publica est usus, sed operis etiam ex plebe. Qui cum haud parvus et ipse militiae adderetur labor, minus tamen plebs gravabatur se templa deum exaedificare manibus suis, quam postquam et ad alia ut specie minora sic laboris aliquanto majoris traducebantur opera, foros in circo faciendos cloacamque maximam, receptaculum omnium purgamentorum urbis, sub terram agendam; quibus duobus

operibus vix nova haec magnificentia quicquam adaequare potuit. His laboribus exercita plebe, quia et urbi multitudinem, ubi usus non esset, oneri rebatur esse, et colonis mittendis occupari latius imperii fines volebat, (Signiam Circeiosque colonos misit, praesidia urbi futura terra marique.

B.A. HONOURS

LATIN UNSEEN TRANSLATIONS.

Friday, April 12th.

1. Si tua tantummodo, Vatini, quid indignitas postularet, spectare voluissem, fecissem id, quod his vehementer placebat, ut te, cuius testimonium, propter turpitudinem vitae sordesque domesticas, nullius momenti putaretur, tacitus dimitterem. Nemo enim horum aut ita te refutandum, ut gravem adversarium, aut ita rogandum, ut religiosum testem, arbitrabatur. Sed fui paullo intemperantior fortasse, quam debui. Odio enim tui, in quo, etsi omnes propter tuum in me scelus superare debeo, tamen ab omnibus paene vincor, sic sum incitatus, ut cum te non minus contemnerem quam odissem, tamen vexatum potius quam despectum vellem dimittere. Quare, ne tibi hunc honorem a me haberi forte mirere, quod interrogem, quem nemo congressu, nemo aditu, nemo suffragio, nemo civitate, nemo luce dignum putet: nulla me ad id caussa impulisset, nisi ut ferocitatem tuam istam comprimerem, et audaciam frangerem, et loquacitatem paucissimis interrogationibus irretitam retardarem. Cicero, *in Vatinium*, c. 1.

2. Hesterno die in lustratione et decursu et simulacro ludicro pugnae tunestum prope proelium fecisti, nec me aliud a morte vindicavit, quam quod me ac meos vinci passus sum. Ab hostili proelio, tamquam fraterno lusu, pertrahere me ad cenam voluisti. Credis me, pater, inter inermes convivas cenaturum fuisse, ad quem armati comisatum venerunt? Credis nihil mihi a gladiis nocte periculi fuisse, quem rudibus te inspectante prope occiderunt? Quid hoc noctis, quid inimicus ad iratum, quid cum ferro succinctis iuvenibus venis? Convivam me tibi committere ausus non sum: comisatorem te cum armatis venientem recipiam? Si aperta ianua fuisset, funus meum parares hoc tempore, pater, quo querentem audis. Nihil ego, tamquam accusator, criminose nec dubia argumentis colligendo ago. Quid enim? Negat se cum multitudine venisse ad ianuam meam, an ferro succinctos secum fuisse? Quos nominavero, arcesse. Possunt quidem omnia audere qui hoc ausi sun: non tamen audebunt negare. Si deprehensos intra limen meum cum ferro ad te deducerem, rem pro manifesto haberes: fatentes pro deprehensis habe. Livy.

Ille deo plenus, tacita quem mente gerebat,
Effudit dignas adytis e pectore voces:
Quid quaeri, Labiene, iubes? An liber in armis
Occubuisse velim potius quam regna videre?
An sit vita nihil, et longa? an differat aetas?
An noceat vis ulla bono? Fortunaque perdat
Opposita virtute minas? laudandaque velle
Sit satis, et nunquam successu crescat honestum?
Scimus, et haec nobis non altius inseret Hammon.
Haeremus cuncti superis, temploque tacente
Nil agimus nisi sponte dei: nec vocibus ullis
Numen eget: dixitque semel nascentibus auctor
Quidquid scire licet: steriles nec legit harenas,
Ut caneret paucis, mersitque hoc pulvere verum:
Estque dei sedes ubi terra et pontus et aer
Et caelum et virtus. Superos quid quaerimus ultra?
Iuppiter est, quodcumque vides, quodcumque moveris.
Sortilegis egeant dubii, semperque futuris
Casibus ancipites: me non oracula certum,
Sed mors certa facit: pavido fortique cadendum est.

LUCAN.

Eia, inrumpe deos et fata latentia laxa
Laurigerosque ignes, si quando, avidissimus hauri:
Arma horrenda tibi saevosque remisimus enses.
Numquam has inbelles galea violabere vittas,
Sis felix numeroque ducum praestantior omni,
Si magnum Danais per te portendis Achillem.
Iamdudum trepido circumfert lumina motu
Intrantemque deum primo pallore fatetur
Thestorides; mox igne genas et sanguine torquens
Nec socios nec castra videt, sed caecus et amens
Nunc superum magnos deprendit in aethere coetus,
Nunc sagas affatur aves, nunc dira sororum
Licia, turiferas modo consulit anxius aras
Flammarumque apices rapit et caligine sacra
Pascitur. Exiliunt crines, rigidisque laborat
Vitta commis, nec colla loco, nec in ordine gressus.

STATIUS.

Idem vesticipes motu iam puberis aevi
Ad mores artesque bonas fandique vigorem

Produxi: quanquam imperium cervice negarent
Ferre, nec insertis praeberent ora lupatis.
Ardua temperies, dura experientia, rarus
Eventus, longo rerum spectatus ab usu,
Ut regat indocilem mitis censura iuventam.
Quae tolerata mihi donec iam aerumna iuvaret
Leniretque usu bona consuetudo laborem;
Donec ad Augustae pia munera disciplinae
Accirer varioque accingerer auctus honore,
Aurea cum parere mihi palatia iussum.
Absistat Nemesis, ferat et Fortuna iocantem.
Praesedi imperio, dum preatextatus in ostro
Et sceptro et solio sibi praefert iura magistri
Maioresque putat nostros Augustus honores.

AUSONIUS.

CLASSICAL HONOURS.

SATURDAY, APRIL 13TH:—MORNING, 9 TO 12.

VIRGIL, *Aeneid I-III*; LUCAN, *Phars, I*; STATIUS, *Theb. X.*

1. Translate:—
Virgil Aen. III, 306-329.
"Ut me conspeit venientem ....
to transmisit habendam."

2. Translate:
Lucan I, 158-182.
"Hae ducibus causae suberant....
to et multis utile bellum."

3. Translate:
Lucan I, 658-672.
"Hi cessant ignes....
to iam libera bello."

4. Translate:
Statius Thebais 91-105.
"Otia vestibulo....
to "nullique ea tristis imago."
Explain Kohlmann's critical note to vv. 100-105.

FACULTY OF ARTS.

B. A. HONOURS.

LATIN.

THURSDAY, APRIL 18TH:—MORNING, 9 TO 12.

I. CICERO'S TUSCULANS I.-II.

Translate:—

Quamvis copiose haec diceremus, si res postularet, quam multa quam varia, quanta spectacula animus in locis caelestibus esset habiturus. quae quidem cogitans soleo saepe mirari non nullorum insolentiam philosophorum, qui naturae cognitionem admirantur eiusque inventori et principi gratias exsultantes agunt eumque venerantur ut deum; liberatos enim se per eum dicunt gravissimis dominis, terrore sempiterno et diurno ac nocturno metu, quo terrore? quo metu? quae est anus tam delira, quae timeat ista, quae vos videlicet, si physica non didicissetis, timeretis? 'Acherunsia templa alta Orci, pallida leti, obnubila tenebris loca.' non pudet philosophum in eo gloriari, quod haec non timeat et quod falsa esse cognoverit? ex quo intellegi potest, quam acuti natura sint, quoniam haec sine doctrina crediturі fuerunt. praeclarum autem nescio qui adepti sunt, quod didicerunt se, cum tempus mortis venisset, toto esse perituros. quod ut ita sit—nihil enim pugno—quid habet ista res aut laetabile aut gloriosum? nec tamen mihi sane quicquam occurrit, cur non Pythagorae sit et Platonis vera sententia. ut enim rationem Plato nullam adferret—vide quid homini tribuam—ipsa auctoritate me frangeret: tot autem rationes attulit, ut velle ceteris, sibi certe persuasisse videatur.

II. CICERO.—PRO MILONE.

(*a*) Translate:

Utinam di immortales fecissent (pace tua, patria, dixerim; metuo enim ne scelerate dicam in te quod pro Milone dicam pie) utinam P. Clodius non modo viveret, sed etiam praetor consul dictator esset potius quam hoc spectaculum viderem. O di immortales! fortem et a vobis, iudices, conservandum virum! 'Minime, minime,' inquit: 'immo vero poenas ille debitas luerit; nos subeamus, si ita necesse est, non debitas.' Hicine vir patriae natus usquam nisi in patria morietur aut, si forte, pro patria? Huius vos animi monumenta retinebitis; corporis in Italia nullum sepulcrum esse patiemini? Hunc sua quisquam sententia ex hac urbe expellet, quem omnes urbes expulsum a vobis ad se vocabunt? O terram illam beatam quae

hunc virum exceperit; hanc ingratam, si eiecerit; miseram, si amiserit! Sed finis sit: neque enim prae lacrimis iam loqui possum; et hic se lacrimis defendi vetat. Vos oro obtestorque, iudices, ut in iententiis ferendis quod sentietis id audeatis. Vestram virtutem ustitiam fidem, mihi credite, is maxime probabit, qui in iudicibus, legendis optimum et sapientissimum et fortissimum quemque elegit.

(*b*) Translate with any necessary explanations :—

(1) Occidi, occidi, non Ti. Gracchum, qui collegae magistratum per seditionem abrogavit: sed eum qui aedem Nympharum incendit, ut memoriam publicam recensionis tabulis publicis impressam extingueret: eum denique cui iam nulla lex erat, nullum, civile ius, nulli possessionum termini: qui non calumnia litium, non iniustis vindiciis ac sacramentis alienos fundos sed castris, exercitu, signis inferendis petebat: qui cum architectis et decempedis villas multorum hortosque peragrabat: qui Ianiculo et Alpibus spem possessionum terminarat suarum.

2. Quid? si ipse Cn. Pompeius, qui ea virtute ac fortuna est, ut ea potuerit semper, quae nemo praeter illum, si is, inquam, potuisset aut quaestionem de morte P. Clodii ferre aut ipsum ab inferis excitare, utrum putatis potius facturum fuisse? Etiam si propter amicitiam vellet illum ab inferis evocare propter rem publicam non fecisset. Eius igitur mortis sedetis ultores, cuius vitam si putetis per vos restitui posse, nolitis, et de eius nece lata quaestio est, qui si eadem lege reviviscere posset, lata lex numquam esset. Huius ergo interfector si esset, in confitendo ab iisne poenam timeret, quos liberavisset?

3. Quamobrem uteretur eadem confessione T. Annius, qua Ahala, qua Nasica, qua Opimius, qua Marius, qua nosmet ipsi.

4. Meminit etiam vocem sibi praeconis modo defuisse, quam minime desiderarit, populi vero cunctis suffragiis, quod unum cupierit se consulem declaratum.

5. Nec vobis tam hanc salutarem in iudicando literam quam illam tristem dedisset.

QUINTILIAN, Book X.

(*a*) Translate :—

Historia quoque alere oratorem quodam uberi iucundoque succo potest: verum et ipsa sic est legenda, ut sciamus, plerasque eius virtutes oratori esse vitandas. Est enim proxima poetis et quodammo-

do carmen solutum, et scribitur ad narrandum non ad probandum : totumque opus non ad actum rei pugnamque praesentem sed ad memoriam posteritatis et ingenii famam componitur : ideoque et verbis remotioribus et liberioribus figuris narrandi taedium evitat. Itaque, ut dixi, neque illa Sallustiana brevitas, qua nil apud aures vacuas atque eruditas potest esse perfectius, apud occupatum variis cogitationibus iudicem et saepius ineruditum captanda nobis est : neque illa Livii lactea ubertas satis docebit eum, qui non speciem expositionis sed fidem quaerit. Licet tamen nobis in digressionibus uti vel historico nonnumquam nitore, dum in his, de quibus erit quaestio, me minerimus, non athletarum toros sed militum lacertos esse : nec versicolorem illam, qua Demetrius Phalereus dicebatur uti, vestem bene ad forensem pulverem facere.

(*b*) Translate and comment on : —

1. Excitat qui dicit spiritu ipso, nec imagine et ambitu rerum, sed rebus incendit. Vivunt omnia enim et moventur, excipimusque nova illa velut nascentia cum favore et sollicitudine.

2. Sed non quidquid ad aliquam partem scientiae pertinet, protinus ad faciendam *φράσιν*, de qua loquimur, accommodatum.

3. Multa in eo claraeque sententiae, multa etiam morum gratia legenda, sed in eloquendo corrupta pleraque atque eo perniciosissima quod abundant dulcibus vitiis. Velles eum suo ingenio dixisse, alieno iudicio.

4. Debet vacare etiam locus in quo notentur quae scribentibus solent extra ordinem, id est ex aliis quam qui sunt in manibus loci, occurrere. Inrumpunt enim optimi nonnumquam sensus, quos neque inserere oportet neque differre tutum est.

5. Longe enim praecedat oportet intentio ac prae se res agat, quantumque dicendo consumitur, tantum ex ultimo prorogetur, ut donec perveniamus ad finem non minus prospectu procedamus quam gradu, si non intersistentes offensantesque brevia illa atque concisa singultantium modo eiecturi sumus.

HISTORY HONOURS.

LATIN AUTHORS (WITH POLYBIUS).

THURSDAY, APRIL 18TH : —9 TO 12.30 A.M.

1. Write a detailed estimate of the part which sea-power played in the First Punic War.

2. (*a*) What does Polybius say about the geography of Italy?

(*b*) Sketch the main events of the war between the Gauls and Romans, 225-222 B.C.

3. What do you know about the career of Cleomenes?

4. What were the main experiences of Hannibal from the time when he left the valley of the Rhone until he fought the battle of the Trebia? What were the Roman generals doing in the meanwhile?

5. What light does the twenty-second book of Livy throw on Roman character

6. Who were Germanicus and Cneius Piso? Explain the nature of their relations.

7. (*a*) Examine the leading features of Agricola's campaign against Galgacus and the Caledonians.

(*b*) Give a list of the more important German tribes whom Tacitus mentions, with brief notes upon any five of them.

8. Make brief, clear notes on: Philinus and Fabius Pictor: the terms of the treaty which closed the First Punic War; New Carthage; the siege of Palus; Hanno's advice; the protest of Manlius Torquatus; the Sibylline Books; Maroboduus; Agricola and the pro-consulate; German sports.

SANSKRIT.

LITERATURE AND PROSE.

FRIDAY, APRIL 19TH:—MORNING, 9 TO 12.

I (1) What is meant by the term "Henotheism," how far is the expression justified? Comment on the monotheistic tendency in R.V. 10.

(2) Write notes upon Varuna — Visnu — Rudra — Prometheus.

(3) Briefly describe the Yajurveda — general contents, schools, etc. What is meant by çukla?

4 Comment on the phrases (1) ete vāi devāh pratyaksam yad brāhmanāh. (2) Atharvangirasah.

5. Give an account of the āçrama's and the duties attached to them.

6. Show the development of ātman-Brahman.

II. Translate into Sanskrit :—

There was in a certain district a Brahman, knowing the Veda, endowed with all good qualities, honoured by his king and honoured by the subjects, pious, knowing his duty. When now old he desired the life of the hermit. So leaving all his possessions and his glory he donned the scant clothing of a beggar and set out northwards. Arriving at a lonely hill, having a village below, he sat near an old hermitage. Then a girl with fair adornment of a village maiden came and prayed in his presence. And thereafter the people of the village day after day brought food to him, regarding him as a holy man. The beasts too put aside their fear and came near and loved the silent man. One day in the rains the old man was in his hut, and hearing a noise outside he went and found all the beasts assembled and fearing. Then he perceived the cause of their fear and leaning on a deer he made his way down followed by all the animals. Arriving at the village he told one that the mountain was going to fall and they followed him and his beasts to another mountain. Then lying beneath a tree as the mountain fell with a crash, the old man died with the mourning beasts around him.

SANSKRIT.

FRIDAY, APRIL 19TH :—AFTERNOON, 2 TO 5.

1. Translate with notes :—

na devesu na yaksesu, tādrg rūpavatī kva cit,

mānusesv api cānyesu, drstapūrvātha vā çrutā,

cittapramāthinī bālā devānam api sundarī.

nalaç ca naraçārdūlo, lokesv apratimo bhuvi,

kandarpa iva rūpena mūrtimān abhavat svayam.

tasyāh samīpe tu nalam praçaçansuh kutūhalāt,

naisadhasya samīpe tu damayantīm punah punah.

tayor adrstakāmo 'bhūc chrnvatoh satatam gunān;

anyonyam prati, kāunteya, sa vyavardhata hrcchayah.

2. Translate :—

ūrdhvadrstir dhyānaparā babhūvonmattadarçanā

pāṇḍuvarṇā kṣaṇenātha, hṛcchayāviṣṭacetanā.

na çayyāsanabhogeṣu ratiṁ vindati karhi cit,

na naktaṁ na divā çete, hā heti rudatī punaḥ.

Classify the compounds.

3. Translate:—

taṁ dṛṣṭvā lokapālās te bhrājamānaṁ yathā raviṁ

tasthur vigatasaṁkalpā vismitā rūpasampadā.

tato 'ntarikṣe viṣṭabhya ṿimānāni divāukasaḥ

abruvan naiṣadhaṁ, rājann, avatīrya nabhastalāt,

bho bho naiṣadha rājendra nala, satyavrato bhavān

asmākaṁ kuru sāhāyyam, dūto bhava narottama.

4. Translate:—

tataḥ çibir uvācainam, eṣa me çaraṇāgataḥ

atyājyas, tad dadāmy anyan māṁsaṁ tat samaṁ tava.

çyeno jagāda yady evam ātmamāṁsaṁ prayaccha me

tatheti tat prahṛṣṭaḥ san sa rājā pratyapadyata.

yathā yathā ca māṁsaṁ svaṁ utkṛtyāropayan urpaḥ

tathā tathā tulāyāṁ sa kapoto 'bhyadhiko 'bhavat.

Explain forms underlined, and the construction yathā yathā.

5. Comment on the constructions (with especial reference to Greek and Latin):—Kiyad etad dhanaṁ puṁsaḥ—kiṁ yuddhena—nabhaso 'vatatāra sah — muñca kapotaṁ kṣudhitasya me. — īpsito nara-nārīṇām — vayasi prāpte.

5. Translate:—

yady ahaṁ imaṁ saktuçarāvaṁ vikrīya daça kapardakān prāpnomi tadā tair iha samaye çarāvāṁs tato ghaṭādīn upakrīya vikrīyānekadhā

vrddhair dhanaih punah punah pugavastradikam upakriya laksasamkhyani dhanany utpadya vivahacatustayam karomi. anantaram jatersya yada dvamdvam kurvanti tada kopakulo 'ham tah patnir lagudenettham tadayami. ity abhidhayottaya tena lagudah ksiptah. atah saktuçaravaç curnito bhandani ca bahuni bhagnani. tato bhandabhangaçabdenagatakumbhakarena tad drstva sa brahmanas tiraskrto mandapikagarbhad bahiskrtah. ato 'ham bravimi

anagatavatim cintam krtva yas tu prahrsyati
sa tiraskaram apnoti bhagnabhando dvijo yatha.

Write notes on words underlined.

7. Parse :—tau samavocatam — avadit — açiçriyat — cakratuh — samahitah — bhavethah — nyavedayat — abhijagmuh.

ENGLISH LANGUAGE AND LITERATURE.

FIRST YEAR.

ENGLISH LITERATURE AND COMPOSITION.

THURSDAY, APRIL 4TH, MORNING, 9 TO 1.

(*Write the answers to A and B in separate books.*)

A. ENGLISH LITERATURE.

1. "A loose sally of the mind; an irregular indigested piece; not a regular and orderly composition."—*Johnson.*

Discuss this definition of an essay and test its application to the Essays of Bacon, of Earle, of Sir William Temple, of Swift, and of Steele. In each case make it plain why you agree or disagree with the definition.

2. In what sense is Dryden to be regarded as the founder of a school? Support your answer by reference to his own work and that of his followers.

3. What was the nature of the public for whom Addison wrote? Show how he was influenced by his time, and what influence he had upon it. Illustrate by definite references.

4. Make notes on the following:—The prose writings of Milton; the style of Bolingbroke; the versatility of Defoe; Johnson as a literary dictator.

5. Give some account of each of the following: A Cypress Grove, A Tale of a Tub; The Shortest Way with the Dissenters; The Rambler. Give the author's name in each case.

6. Write briefly on the life and works of Steele, or of Goldsmith.

B. COMPOSITION.

1. Discuss briefly with illustrations:—Mixed Metaphor, Misapplied Metaphor, judicious use of foreign words and phrases, Simple Solecism.

2. What arguments or pleas may be advanced in support of Purity of Diction? Examine any *one*, with some minuteness.

3. Explain carefully the principle of Coherence as applied to *sentences*; and state the simple devices which assist in the attainment of that quality.

4. Explain and illustrate:—Conciseness, Useless Tautology, Emphatic Inversion.

5. Write an essay of not less than two pages on any *one* of the following subjects.

A. Milton's Plea for Unlicensed Printing.
B. The Perfect Knight.
C. The Satirical spirit in Swift.
D. Truth is Stranger than Fiction.
E. A Recent Invention.

INTERMEDIATE EXAMINATION.

ENGLISH LANGUAGE AND COMPOSITION.

THURSDAY, APRIL 4TH—MORNING, 9 TO 12.

Half the marks for this paper will be given for the essay, which should be written in a separate book.

1. Mention some of the important features which distinguish the present King's English from that of King Alfred.

2. State the main consequences of the Norman Conquest, so far as the English language is concerned, giving the approximate dates of the changes effected.

3. Illustrate the various sources from which our vocabulary has been enriched since 1500.

4. Write out the following in modern English, giving the date and name of the author and adding etymological and explanatory notes:—

(*a*) Vor bote a man conne frenss, me telth of him lute.
Ac lowe men holdeth to engliss & to hor owe speche yute.
Ich wene ther ne beth in al the world contreyes none,
That ne holdeth to hor owe speche bote Engelond one.
Ac wel me wot uor to conne bothe wel it is,
Vor the more that a mon can, the more wurthe he is.

(*b*) Englysche men theygh hy hadde fram the bygynnynge thre maner speche, Southeron, Northeron and Myddel speche (in the myddel of the lond) as hy come of thre maner people of Germania; notheles, by commyxstion & mellynge furst with Danes & afterward with Normans, in

menye the contray longage ys apeyred, & som useth strange wlaffynge, chyterynge, harrynge & garrynge & grisbitinge. This apeyryng of the burthe-tonge ys because of twey thinges,—on ys for chyldern in scoles agenes the usage and manere of al othere nacions buth compelled for to leve here oune longage, & for to construe here lessons & here thingis a Freynsch & habbeth suththe the Normans come first into Engelond. Also gentilmen children buth ytaught for to speke Freynsch fram tyme that a buth yrokked in here cradel, & conneth speke & pleye with a chyld hys brouch; and uplondysche men wol lykne hamsylf to gentile men & fondeth with gret bysynes for to speke Freynsch for to be more ytold of.

(*c*) Peyne the not eche croked to redresse
In trust of hire that turneth as a balle,
Grete rest stant in lytil besynesse;
Beware also to spurne ayein an nalle,
Stryve not as doth a croke with a walle;
Daunte thy selfe that dauntest otheres dede,
And trouthe the shal delyver, hit is no drede.

5. Write an essay on *one* of the following subjects :—

(*a*) The Aryans and Grimm's Law.
(*b* Euphuism.
(*c*) Spenser's Poetry.
(*d*) Miracle Plays.
(*e*) Shakspere's Predecessors.
(*f*) The character of Hamlet.
(*g*) "As You Like It."

INTERMEDIATE EXAMINATION.

ELIZABETHAN LITERATURE.

THURSDAY, APRIL 4TH—AFTERNOON, 2 TO 4.

1. Give a short account of the Marprelate controversy.

2. Outline *one* of Spenser's minor poems.

3. Make a list of Shakspere's comedies and historical plays in order of composition. State how your conclusions are arrived at.

4. Analyse Falstaff's character and mention the plays in which he appears.

5. Give the play from which the following lines are taken, name the speaker, and state the situation as accurately as you can :—

(*a*) Old John of Gaunt, time-honour'd Lancaster,
Hast thou, according to thy oath and band
Brought hither Henry Hereford thy bold son?

(*b*) My chief humour is for a tyrant: I could play Ercles rarely, or a part to tear a cat in, to make all split.

(*c*) But to my mind, though I am native here
And to the manner born, it is a custom
More honour'd in the breach than the observance.

(*d*) Holla, ye pampered jades of Asia!
What! can ye draw but twenty miles a day?

(*e*) Farewell, fair queen; weep not for Mortimer,
That scorns the world, and, as a traveller,
Goes to discover countries yet unknown.

(*f*) Full fathom five thy father lies;
Of his bones are coral made.

(*g*) By heaven, methinks it were an easy leap,
To pluck bright honour from the pale faced moon.

(*h*) To say to thee that I shall die, is true; but for thy love, by the Lord, no; yet I love thee too.

THIRD YEAR

ENGLISH COMPOSITION AND CRITICISM.

FRIDAY APRIL 19TH:—MORNING, 9 TO 12.

1. Discuss, with illustrations, the various meanings attached to the word *style;* and state clearly the principal attributes that pertain to a good prose style.

2. Distinguish carefully between the *scientific* and the *aesthetic*, function of criticism.

3. State, with some fulness, the nature of the most striking of recent attempts at the establishment of a scientific critical theory; and discuss both the strong and the weak points of the system.

4. Explain fully, with illustrations, the theory of *Realism*, as applied by critics to literary work. Show the limitations of the theory.

5. Indicate the changes in principles and method introduced by Lessing into the general practice of criticism.

6. Write a short dissertation on any *one* of the following topics:—Literature as the expression of Feeling; Literature as the expression of Imagination; Literature under the aspect of Form. Give ample illustration (original, if possible) of the points taken up in discussion.

THIRD YEAR.

MIDDLE ENGLISH.

FRIDAY, APRIL 5TH:—MORNING, 9 TO 12.

1. Give leading differences between the three chief Middle English dialects.

2. Translate:—

(*a*) As the hende he dudc verst · & messag*e*rs him sende,
That he vnderstode him bet· is dede vor to amende,
& tho*g*te on the grete oth · th*a*t he him adde er ydo,
To wite him wel Engelond · & to spousi is do*g*t*er* also.

(*b*) Ne ssame *g*e no*g*t that Harald · th*a*t eu*e*re was of luth*er* wrenche,
& bi-uore *g*ou was uorsuore · that he wolde mid is taile
Turne is wombe toward us · and his face in bataile.

(*c*) He esste ostage strong inou · & hii ne ssolde no*g*t w*u*rne,
Ac toke him ostage god · at is owe wille,
do th*a*t *g*if eny a*g*en him was · huld him tho stille:
*g*if toward Edgar Atheling · eni is h*e*rte drou,
That was ku*n*de eir of this lond · him huld tho stille ynou.

(*d*) Th*e*r-uore th*e*r-inne vel · mony mis-cheuing,
& is sone was th*e*r-inne issote · Willam, the rede king;
& is o sone, that het Richard · ca*g*te th*e*r is deth al-so.
& Richard, is o neueu · brec th*e*re is nekke th*e*r-to,
As he rod an honteth · & p*a*r-auntre is hors spurnde.

(*e*) To noght es lede lither in his sight;
And dredand Lau*e*rd he glades right.
He that to his neghburgh sweres,
And noght biswikes him ne deres.

(*f*) Soreghes vmgaf me of helle;
Bisied me snares of dede ful felle.
In mi drouing Lau*e*rd called I,
And to mi God cried I witerli;
And he herd fra his hali kirke mi steuen,
And mi crie in his sight in eres yhode euen.

g) Vnderand of hend bidene,
And that of his hert es clene;
In vnnait that his saule noght nam,
Ne sware to his neghburgh in swik e dam.
He sal fang of Lau*e*rd blissing,
And mercy of God his heling.

(*h*) Get gret peryl hy vndergothe
That cristneth twyes enne,
Other to *g*eue asent ther-to,
Other for loue of kenne
For-hedeth,
Wanne child ari*g*t cristnyng heth,
And that other nau*g*t for-bedeth.

(*i*) Ac *g*et ther beth cristnynges mo,
Ac no man ne may di*g*tti ;
For hi beth Godes grace self,
Men of gode wil to ri*g*ti
And wynne,
Wanne hi wolde i*c*ristned be,
And mo*g*e mid none ginne.

(*j*) Be thise uader of house me may onderstonde / the wil of skele. to huam be-longeth moche mayné: Tho*g*tes. and his besteriinge. wyt. and dedes / ase wel wyth-oute : ase wyth-inne. Thet is to zigge / huych mayné / to moche slac / and wyless-uol ssel by : bote yef the ilke uaderes stefhede hise strayny / and ordayny.

(*k*) Ich yze*g* the ilke onspekynde / an on-todelinde mage*s*té of the holy trinyté. be-gynnynge / ne ende ne heth. Ac and ly*g*t ther-inne woneth thet me ne may nagt come to. Vra*m* tho ly*g*te byet hy- thorsse mine e*g*en / and the zy*g*the thyester. Hyt ouergeth uorzothe alle wyttes / and alle zy*g*thes. the ilke bry*g*[t]nesse. and the ilke uolnesse.

3. Write on the changes A.S. vowels and diphthongs have undergone in the stressed and unstressed syllables of Teutonic words as seen in Chaucer.

4. Take a note or two on each of the following subjects : Chaucer's portrait ; the Ellesmere manuscript ; the black country in the time of Chaucer ; the buildings Chaucer would recognize in modern London ; a knight's train ; St Augustine's, Canterbury ; the mediæval marriage ceremony ; Bordeaux ; Peter Lombard ; the shrine of Becket ; the duration of a Canterbury pilgrimage.

5. Describe the Wif of Bath.

6. Over against the names of any other ten pilgrims, mention a distinctive feature of each.

7. (*a*) Give in a page an outline of the Knight's Tale ; also of the Parlement of Foules.

(*b*) Write on the sources of both.

8. Say where the following lines are found :

(*a*) " Ye shuld be deed by mighty Mars the rede "

(*b*) Let him be war, his nekke lyth to wedde
(*c*) Above hir heed hir dowves flikeringe
(*d*) We losten all our housbondes at that toun
(*e*) His slepy yerde in hond he bar uprighte
(*f*) Everich of hem halp for to armen other
(*g*) The smyler with the knyf under the cloke
(*h*) His brest to-brosten with his sadel-bowe,
(*i*) "Never mot she thee"
(*j*) "There been mo sterres, god woi, than a paire"
(*k*) The lover met he hath his lady wonne.

THIRD YEAR.

ANGLO SAXON.

(*Texts*).

THURSDAY, APRIL 4TH:—MORNING, 10 TO 12.

1. What caused Orosius to write his History and what was its aim?

2. Translate:

(*a*) Ne mette he ær nan gebun land, siththan he from his agnum ham for; ac him wæs ealne weg weste land on thæt steorbord, butan fiscerum ond fugelerum ond huntum, ond thæt wæron eall Finnas; ond him wæs a widsæ on thæt bæcbord.

(*b*) And tha kyningas, and tha othre heahthungene menn swa micle lencg swa hi maran spe la habbath, hwilum healf gear thæt hi beoth unforbærned, and licgath bufan eorthan on hyra husum.

3. Write a short paragraph on the Anglo-Saxon Annals.

4. Translate:

(*a*) Tha foron hie siththan æfter thæm weal la hlothum ond floccradum, bi swa hwatherre efes swa hit thonne fierdleas wæs. Ond hi mon eac mid othrum floccum sohte mæstra daga ælce, oththe on niht, ge of thære fierde ge eac of thæm burgum.

(*b*) Da thæs on sumera on thysum gere tofor se here, sum on Eastengle, sum on Northhymbre. Ond tha the feohlease wæron him thær scipu begeton, ond suth ofer sæ foron to Sigene.

5. Translate:

(*a*) Hwæt, *eo*rthe mæg with *ea*lra wihta gehwilce,
and with *a*ndan, and with æminde,
and with tha *mi*celan *m*annes tungan.

(*b*) *F*leo on *f*yrgenbeafde;
*h*al wes-*tu*! *h*elpe thin Drihten!
Nim thonne thæt seax, ado on wætan.

6. Where is the MS of Beowulf deposited? how did it get there? what is its condition? Explain the designation Vitellius A XV. Make a note or two on Wanley's catalogue. Mention three leading views as to the locality of the poem.

7. Translate the following extracts and scan (*b*).

(*a*) Heo under *h*eolfre genam
cuthe folme ; cearu wæs geniwod,
ge*w*orden in *w*icun : ne wæs thæt ge*w*rixle til,
thæt hie on *b*a healfa *b*icgan scoldon
*f*reonda *f*eorum.

THIRD YEAR.

ANGLO-SAXON.

GRAMMAR AND PHILOLOGY.

THURSDAY, APRIL 4TH:—MORNING, 9 TO 10.

1. Decline in full:—
(*a*) wulf(*m*) ; lic(*n*) ; bearu(*m*) ; ben(f) ; brothor.
(*b*) hwæt
(*c*) thu ; hwa.

2. Take these three series, namely the *e* and the two diphthongal series of the Aryan ablaut system and derive from them the corresponding Teutonic, Mæso-Gothic and Anglo-Saxon ablauts. Show that ablaut may be illustrated otherwise than from verb-stems.

3. Conjugate the past indicative and subjunctive of feallan and wacan. Classify weak verbs and give examples.

4. Illustrate *compensation*, *svarabhakti* (in various languages), the i-umlant of the longs of æ, o, a. State and illustrate the o and u-umlants.

5. Explain the italicized parts of we*o*rthan ; wæ*r*on, *ea*rm ; also *helpan* as compared with *healp*. Why do we find the form *holpen* and not *hulpen*, and why *bunden* and not *bonden*?

B.A. ORDINARY.

ENGLISH LITERATURE.

THE POETS OF THE NINETEENTH CENTURY (LECTURES).

THURSDAY, APRIL 4TH—AFTERNOON, 2 TO 5.

1. Write a brief explanatory note on (*a*) "Liberty, Fraternity, Equality" ; the Fête of the Federation ; the Night of the Abolition of Privileges ; the Lion of Lucerne; Ephraim Chambers ; *L'Ami du Peuple*; *Vindiciæ Gallicæ*.

2. The issue of the French Revolution disappointed Wordsworth but gave him a cardinal article of belief: what was it? How does Tennyson phrase it? What piece was denominated the lyric of Republicanism? what the Epic of the French Revolution?

3. What two points in the prefaces to the *Hours of Idleness* and *Poems by Two Brothers* were touched on? What poem in the latter work was read and why? *Love's Labours Lost* and *Cymbeline* were mentioned in connection with two of Tennyson's early poems; name them.

4. (*a*) Connect the *Two Voices* and *In Memoriam* in one important particular.

(*b*) Let me not cast in endless shade
What is so wonderfully made.
What is the essence of the reply?

(*c*) watching from a ruin'd tower
How grows the day of human power
What is the essence of the reply?

(*d*) What piece of Tennyson was mentioned in illustration of the difference between (*a*) sculpture and poetry (*b*) exact and vague description?

5. *The Princess.*
(*a*) Name the heroine.
(*b*) Classify the songs.
(*c*) Name six leading characters and mention one leading trait of each.

6. *Maud.*
(*a*) What is meant by saying that *Maud* was written backwards?
(*b*) Show that each of the following extracts bears on a vital point in the thought or mode of the poem:

(*a*) Sighing for Lebanon
Dark cedar,
(*b*) For a vast speculation had failed,
(*c*) Now to the scream of a madden'd beach dragged down by the wave
(*d*) A martial song like a trumpet's call
(*e*) The broad-brimmed hawker of holy things,
(*f*) The blood-red blossom of war with a heart of fire
(*g*) Nothing but idiot gabble!
(*h*) The tiny cell is forlorn
Void of the little living will.

7. (*a*) Select from the preface to *In Memoriam* thoughts that mirror the great outlines of the poem. Compare the particulars briefly but precisely, with Wordsworth.

(*b*) Mention in logical sequence the three most important steps in the development of thought in *In Memoriam*.

8. Sketch the course of thought in *In Memoriam* down to the first defining point.

9. (*a*) Mention the two crises in Shelley's life. What aspect of *Queen Mab* was touched on? of *Lines written among the Euganean Hills?* Where did Keats die, and who was with him at his death?

(*b*) Sketch the course of thought in *Adonais*, and state the characteristics of the poem.

10. Present in tabular form allegory in the *Coming of Arthur* and *Gaseth and Lynelte*.

11. Compare Tennyson's treatment of the theme in *Geraint and Enid* with that in his source.

B. A. ORDINARY.

ENGLISH LITERATURE.

THE POETS OF THE NINETEENTH CENTURY (*Second Paper.*)

WEDNESDAY, APRIL 10TH:—2 TO 5 P.M.

1. (*a*) Write on the sonnets of Wordsworth, illustrating by quotations or direct references.

(*b*) Give a sketch of Laodamia.

2. Compare the poetry of Southey with that of Coleridge with special reference to those poems named for your reading.

3. What types of men and what schools of thought does Browning show in Johannes Agricola, The Bishop orders his tomb at St. Praxed's Church, Bishop Blougram's Apology. Does he identify himself with any one of these?

4. Name ten poems which you would place in an anthology of your favourite pieces selected from the list in this course. In each case give the reason for your choice, and when it is possible quote lines which seem to you particularly fine.

5. State in what poems the following extracts occur and give some idea of the connection of any ten of them,

(*a*) May truth shine out, stand ever before us.

(*b*) Worlds on worlds are rolling ever
From creation to decay.

(*c*) Not in the fabled landscape of a lay,
But soaring snow clad through thy native sky.
(*d*) Dowered with the hate of hate, the scorn of scorn.
(*e*) Continuous as the stars that shine
And twinkle on the milky way.
(*f*) Sucked along in the flying wake
Of the luminous water snake.
(*g*) Make me thy lyre, even as the forest is,
(*h*) God's finger touched him, and he slept.
(*i*) And to be wroth with one we love
Doth work like madness in the brain.
(*j*) How silent and how vast are these dim worlds.
(*k*) Heard melodies are sweet, but those unheard
Are sweeter,
(*l*) And let thy fate instruct the proud
God's meanest creature is his child.
(*m*) In this world, who can do a thing, will not;
And who would do it, cannot, I perceive.
(*n*) And central peace, subsisting at the heart
Of endless agitation.
(*o*) Teach me half the gladness
That thy brain must know.
(*p*) The moan of doves in immemorial elms,
And murmuring of innumerable bees.
(*q*) And the stars of night beat with emotion and tingled and shot.
(*r*) Look on my works, ye Mighty, and despair.
(*s*) She was a goddess of the infant world.
(*t*) The truly great
Have all one age, and from one visible space
Shed influence.
(*u*) There came and looked him in the face
An angel beautiful and bright.
(*v*) In our flesh grows the branch of this life, in our soul it bears fruit.
(*w*) Many a fallen old Divinity
Wandering in vain about bewildered shores.
(*x*) And he saw
The thrilling secrets of the birth of time.
(*y*) How beautiful is all this visible world!
How glorious in its action and itself.

THIRD YEAR HONOURS

ENGLISH.

SYDNEY, *Apologie for Poetrie*: MILTON, *Areopagitica*.

MONDAY, APRIL 8TH:—9 TO 12 A.M.

[*The answers to A and B are to be written in different books.*]

A.

1. State very briefly in what connection and in what way Milton touches on the following subjects, and where explanatory notes are necessary, make them:

(*a*) His own temper when he reflects on the task he is undertaking.
(*b*) A previous controversy in which he took part.
(*c*) "That jealous hautinesse of Prelates and cabin Counsellours."
(*d*) The two kinds of books condemned in Athens. (Add his proof).
(*e*) Lucretius and Livy.
(*f*) The first excommunication of heretical books.
(*g*) Porphyrius and Proclus.
(*h*) Coining all the seven liberall Sciences out of the Bible.
(*i*) A volume of Mr Selden.
(*j*) Guion.
(*k*) The prohibition of the Bible.
(*l*) The perversion of Arminius.
(*m*) Contemporaneous periodical literature.
(*n*) The reason which made "the present licencers" take office.
(*o*) The chapel of Henry VII, Westminster.
(*p*) The national vice of England.
(*q*) The chief esteem in which England is held by foreigners.
(*r*) "We must not expose ourselves to temptations without necessity and next to that, not imploy our time in vain things. To both these objections one answer will serve." Give it.

2. State in about a page what you consider the leading features of Areopagitica as regards mode and style.

3. In two connected passages Milton speaks of the indignities an author suffers at the hand of the licenser and of "an undervaluing and vilifying of the whole Nation." Give their outline.

4. Sketch the course of licensing in England.

B.

1. (*a*) State the nature and scope of "The Apologie for Poetry."
(*b*) Mention any later treatises in English on the same subject, and indicate in what points they agree with Sidney's.

2. Give an outline of

(*a*) Sidney's argument that poetry is "more philosophical and more studiously serious than history."

(*b*) His examination of Plato's treatment of Poets

3. What can you say of Sydney's criticism of English poetry? What does he say of the possibilities of the language?

4. Discuss Sidney's favorite heroes.

5. Make notes on the following:—

Musaeus, foreconceit, Pontanus, Lucan, *ἀρχιτεκτονική* the Theban brothers, *in distrinum*, in despite of Pallas, to ear, crowder.

THIRD YEAR HONOURS IN ENGLISH.

WORDSWORTH, *Prelude;* CAMPBELL, *Pleasures of Hope.*

FRIDAY, APRIL 12TH:—MORNING, 9 TO 12

1. State briefly in connection with what important points references to the following were made in the lectures:

(*a*) The Duchy of Burgundy.
(*b*) Bacon and the Encyclopædia.
(*c*) The Church and the Encyclopædia.
(*d*) Rousseau and the equality of man.
(*e*) Calas.
(*f*) "He pities the plumage, but forgets the dying bird."
(*g*) Burns and the French Convention.

2. Give a brief account of

(*a*) The play entitled the Fall of Robespierre.
(*b*) The Pantisocracy.
(*c*) Wordsworth's views regarding poetical diction.

3. Briefly explain allusion or thought in

(*a*) He cleared a passage for me, and the stream
Flowed in the bent of Nature.
(*b*) What one is,
Why may not millions be?
(*c*) And, on the melancholy beacon, fell
A spirit of pleasure and youth's golden gleam.
(*d*) "Come now ye golden times."

(*e*) hidden in those gloomy shades
His days he wasted,—an imbecile mind.
(*f*) the Maid of Buttermere.
(*g*) Can string you names of districts, cities, towns,
The whole world ever
(*h*) Caressing him again and yet again,
(*i*) the inner pulse
Of contemplation almost failed to beat.
(*j*) A mouldering pile with fractured arch.
(*k*) A huge peak, black and huge.
(*l*) Vanquished Mithridates.

4. Describe the tavern on the shore of Windermere, and the ascent of Snowdon.

5. Describe in about a page your impressions of the *Prelude*, and briefly notice the character of its blank verse.

6. Give some account of Campbell's life prior to the publication of the *Pleasures of Hope*, and also some account of his other poems.

7. State in what way and in connection with what theme reference is made to Cyprus, Columbus, Columba, the Cape of Good Hope, Carmel, Cape Colonna, Congo, Chiloe.

8. Give a few facts which show the practical interest Campbell exhibited in the cause of Poland, and also an outline of that portion of the *Pleasures of Hope* which touches directly on Poland.

9. Write on the characteristics of Campbell's poetry, using the second book of the poem in illustration.

THIRD YEAR HONOURS IN ENGLISH.

ENGLISH ESSAYISTS.

DRYDEN, *Essay of Dramatic Poesy*; LOBBAN, *English Essays*.

SATURDAY, APRIL 13TH:—MORNING, 9 TO 12.

1. Write on Montaigne.

2. What was said concerning Joachim du Bellay?

3. Give some account of Defoe's early life and of his *Review*.

4. Discuss two of the minor critical essayists in verse.

5. State the views and arguments of the following speakers regarding the subjects that stand over against their names:

Eugenius: the divisions of the matter of a play,
the plots of the ancient drama,
love in the ancient drama.

Lisideius: Tragi-comedy; Death.

Neander: Tragi-comedy; Death.
the use of rime in the drama.

6. Discuss the style of each of the following writers: Addison, Johnson, Goldsmith, Lamb.

7. Give as far as possible in their order and within the limits of a page, the leading thoughts of the essays entitled, *The Instability of Human Glory; Beau Tibbs.* Treat an essay of your own choice similarly.

8. Write explanatory notes on

(*a*) Favonius.
(*b*) Sir Jeoffery Notch.
(*c*) Tom Touchy.
(*d*) Giles Gorgon.
(*e*) One of the Lady Lizard's daughters.
(*f*) "This itinerant man-slayer."
(*g*) "He abounds in several frugal maxims, amongst which the greatest favourite is 'A penny saved is a penny gained.'
(*h*) "The Act of Deformity."
(*i*) "This part of the exercise is not difficult, provided a woman applies her thoughts to it."
(*j*) "I myself, who have crowed to the whole town for near three years past, may perhaps put my readers in mind of a Dunghill Cock."
(*k*) "I have done my utmost for some years past to stop the progress of *mob* and *banter*."

THIRD YEAR HONOURS IN ENGLISH.

MILTON:—*Shorter Poems and Life.*

TUESDAY, APRIL 16TH:—MORNING, 9 TO 12.

1. State from what poems the following lines are taken:—
(*a*) O run, prevent them with thy humble ode
(*b*) Young Hyacinth born on Eurotas' strand
(*c*) My hasting days fly on with full career
(*d*) Both them I serve and of their train am I
(*e*) Loud o'er the rest Cremona's trump doth sound

(*f*) he spent his date
In course reciprocal.

Give as precisely as you can the context of any *three* of the above and explain the reference in (*e*).

2. State from what poems the following lines are taken ;—
(*a*) They also serve who only stand and wait
(*b*) New Presbyter is but old Priest writ large
(*c*) Lift not thy spear against the Muses' bow'r
(*d*) Met in the milder shades of Purgatory
(*e*) Of which all Europe rings from side to side
Classify Milton's sonnets of the period 1642-1658, and write a short explanatory paragraph on those which require it.

3. (*a*) Explain the following epithets in *L'Allegro* and *Il Penseroso*, and give the lines in which they are found ; vain, wanton, virtuous, unreproved, decent, uncouth.
(*b*) Refer the following allusions to the subdivisions in which they are found and explain them : Lydian airs ; Cambuscan bold ; Fancy's child! Attic boy ; thrice-great Hermes ; faery Mab.

4. Describe chiefly in your own words the landscape presented in *L'Allegro*.

5. Make a note on the following names mentioned in connection with the Masque : Samuel Daniel, Barriers, Venice, Sir William Davenant, Alfonso Ferrobosco.

6. (*a*) Write on *Arcades* as a masque
(*b*) Mention and explain the allusions to Arcadia which it contains.

7. (*a*) What references are made in *Comus* to the Welsh, Circe, Arcady, Acheron, Nereus ?
(*b*) Is *Comus* a masque ?
(*c*) Give an outline of the speech of the *Attendant Spirit* in which the adventure of the *Lady* is described.

8. Refer the following lines to their speakers and say where each is found :
(*a*) Danger will wink on Opportunity
(*b*) Praising the lean and shallow Abstinence
(*c*) Sadly sits th Assyrian queen
(*d*) A thousand liveried angels lackey her
(*e*) Let us fly this cursed place

9. Make a brief note on
(*a*) The Mermaid

(*b*) Oriana
(*c*) William Lilly
(*d*) Logonomia Anglica
(*e*) Du Bartas
(*f*) Giovanni Diodati
(*g*) Milton's reason for declining to enter the Church
(*h*) Clunch
(*i*) Marso
(*k*) Milton's views regarding holidays
(*l*) Morus
(*m*) Marvel

10. Choose a topic bearing on Milton and write about a page on it.

THIRD YEAR HONOURS IN ENGLISH.

ADDISON, *Papers on Paradise Lost;* MILTON, *Paradise Lost,* Bks. I and II.

THURSDAY, APRIL 18TH:—AFTERNOON, 9 TO 12.

1. Answer the following questions briefly:

(*a*) Does *Paradise Lost* possess unity?

(*b*) What modern mock-heroic poems present allegorical figures?

(*c*) What is Milton's "chief talent and indeed his distinguishing excellence?"

(*d*) What does "Over the vast Abrupt" illustrate?

(*e*) What objections to the "fable" of Paradise Lost lie in the "event" and in Satan?

(*f*) Why did Perrault ridicule Homer?

(*g*) What criticism is made of the monstrous animals of the Infernal world?

(*h*) What is the finest speech ascribed to Satan in the whole poem?

(*i*) What sentiments are absent from the courtship of Adam?

(*j*) What is said concerning Claudian and Lemnos?

(*k*) In whose spirit is the thought of the golden compasses conceived? Illustrate.

(*l*) With what is Adam's converse with Eve after having eaten the forbidden fruit compared?

(*m*) What is said regarding the figure of Michael?

(*n*) What is the moral of Paradise Lost?

2. Criticise Addison's papers.

3. Notice the influence of Milton and Addison on German literature.

4. Describe the building of Pandemonium.

5. State what is said in the debate by

(*a*) Satan regarding precedence.

(*b*) Moloch regarding the difficulty of ascent.

(*c*) Belial regarding change in the future.

6. Give an outline of Mammon's speech.

7. Describe the voyage of Satan through chaos.

8. Write about a page on Milton and Dante.

9. Give the meaning of the following words and say where they are found: night-foundered, ammiral, grunsel, frequent, frore, impal'd, buxom.

THIRD YEAR HONOURS IN ENGLISH.

MODERN DRAMA.

FRIDAY, 19TH APRIL—MORNING, 9 TO 12.

1. Give some account of the measures taken by Puritan administration for the suppression of stage-representations. Comment on the result.

2. Discuss:—Heroic Plays, Histriomastix, Venice Preserved; A Short View.

3. Give, in broad outline, the plot of *Cato*; and examine the play (*a*) from the dramatic critic's point of view, and (*b*) in relation to diction and style.

4. Write a clear, but succint account of the rise of the "Sentimental Drama" in England in the eighteenth century: make some reference to specially illustrative plays, and give an idea of recent developments in this direction.

5. State clearly the dramatic and literary qualities of the dramatic work of Goldsmith, *or* of Sheridan, with apposite quotations from their respective plays, and analyze fully any *one* noteworthy character represented by either playwright.

THIRD YEAR HONOURS IN ENGLISH.

POLLARD, MIRACLE PLAYS.

FRIDAY, 19TH APRIL:—12 TO 1.

1. (*a*) Give two theories of the origin of Miracle Plays,
(*b*) Make notes on the different meanings attached to the terms Miracle and Mystery.
(*c*) Give some account of the way in which the plays were produced.

1. (*a*) Translate the following passages:—
(*b*) Refer them to their proper plays and cycles,
(*c*) Show in what way each is characteristics of one phase of miracle-plays,
(*d*) Make notes on italicized words.

(1) Owte owte! harrowe! helples, styke hote *at* es here,
This es a dongon of dole that I am to dyghte,
Whare es my kynde become, so cumly and clere,
Nowe am I laytheste, Allas! tha[t] are was lighte.
My bryghtnes es blakkeste and *blo* nowe;
My bale es ay *betande* and brynande,
That gares me go gowlande and gyrnande.
Owte! ay walaway! I well enew in wo nowe!

(2) Lorde, that wemen be crabbed aye,
And non are meke, I dare well saye,
This is well seene by me to daye,
In witnesse of you *ichone*.
Goodwiffe, let be all this *beare*,
That thou maiste in this place heare;
For all the wene that thou arte maister,
And so thou art, by Sante John!

(3) Now were tyme for a man, that lakkys what he wold,
To stalk prevely than unto a fold,
And *neemly* to wyrk than, and be not to bold,
For he might aby the bargan, if it were told
At the endyng.
Now were tyme for to *reylle;*
Bot he nedes good counselle
That fayn wold fare weylle,
And has bot lytylle spendyng.
Bot abowte you a serkylle, as rownde as a moyn,
To I have done that I wylle, tylle that it be noyn,
That ye lyg stone stylle, to that I have doyne,
And I shall say thertylle of good wordes a *foyne*,
On hight.
Over youre heydys my hand I lyft,

Outt go youre een, fordo your syght,
Bot zit I must better shyft,
And it be right.

THIRD YEAR HONOURS IN ENGLISH.

ADDISON, *Essays on the Imagination*; DRYDEN, *Annus Mirabilis, Absolom and Achitophel, Preface to Fables.*

MONDAY, APRIL 22ND :—MORNING, 9 TO 12.

1. (*a*) What are the two chief divisions of the pleasures of the imagination ?

(*b*) What does Addison mean by *greatness?*

(*c*) Mention one of the final causes of our delight in anything that is great.

(*d*) Why are we pleased with the works of Nature which resemble Art?

(*e*) How are English gardens contrasted with French and Italian?

(*f*) What is said about the Pantheon?

(*g*) How would you form a right judgment of a description?

(*h*) What is said about a perfect imaginative English poet?

(*i*) Why do we take pleasure in the description of Torments?

(*j*) What reference is made to Mr. Bays?

(*k*) What is said concerning Livy?

(*l*) What reference is made to Babylon?

2. Write on the characteristics of the Fine Arts.

3. Touch on the following subjects :

(*a*) Dryden's vindication of the stanza of *Annus Mirabilis.*

(*b*) Dryden's vindication of himself or a describer of nautical events.

(*c*) Dryden's view concerning poetical images.

4. State what is said in *Annus Mirabilis* concerning Proteus, the Sirens, Munster's Prelate, Scipio, the Elean plains, Creusa, Libyan huntsmen, Cato, London Bridge, Theban walls.

5. Give an outline of the description of the third and fourth days' battles.

6. Give with identification a list of the characters mentioned in *Absalom and Achitophel.*

7. Describe the most important person of each side.

8. State what is said in the *Preface* concerning

(*a*) Spenser and Fairfax.

(*b*) Mr. Rymer.

(*c*) Mr. Hobbs.

(*d*) The studies of Chaucer and Ovid.

(*e*) Ovid and Arcite.

(*f*) Dr. Cowley.

(*g*) Mademoiselle de Scudery.

(*h*) Palamon and Arcite.

9. Write in about a page your impressions of *Absolom and Achitophel.*

B.A. EXAMINATION FOR HONOURS IN ENGLISH.

TENNYSON, *In Memoriam;* BROWNING, *Christmas Eve and Easter-Day.*

TUESDAY, APRIL 2ND :—MORNING, 9 TO 12.

1. What is said in *In Memorium* concerning the character and limitations of the poem? Quote in proof.

2. Use the poem biographically.

3. State in connection with what topic each of the following lines occur and give its immediate contest as precisely as you can :—

(*a*) For nothing is that errs from law.

(*b*) And unto me no second friend.

(*c*) The captive void of noble rage.

(*d*) Behind the veil, behind the veil.

(*e*) Who loves not knowledge?

(*f*) The rooks are blown about the skies.

(*g*) Whose faith has centre everywhere.

(*h*) And like a finer light in light.

(*i*) Thrice blest whose lives are faithful prayers.

(*j*) Thy passion clasps a secret joy.

4. Give an outline of the allegory in CIII.

5. Under heads of your own selection write on landscape in *In Memoriam.*

6. Describe the congregation of the chapel.

7. Give an outline of the Professor's discourse.

8. Indicate the relation of the following extracts of the inner thought of *Easter-Day*: —

(*a*) I would always burst

The door ope, know my fate at first.
(*b*) And give my body to be sawn
Asunder.
(*c*) My box—a trifle, I confess.
(*d*) Your mistress saw your spirit's grace.
(*e*) You would grow as a natural tree.
(*f*) as is your sort of mind
So is your sort of search.
(*g*) Then I "Behold my spirit bleeds."
(*h*) "I fought with beasts."
(*i*) We find the tug's to come,—that's all.
(*j*) For art supplants, gives mainly worth
To nature.

9. Describe the Judgment Day.

10. Explain:
(*a*) a Gallio.
(*b*) the preacher is found no Pascal.
(*c*) his Bourbon bully's gloatings.
(*d*) Dionysins Zagrias.
(*e*) his Titan's arch-device.
(*f*) Fourier's scheme.

B. A. HONOURS IN ENGLISH.

ANGLO-SAXON (*unseen*) AND EARLY ENGLISH.

WEDNESDAY, APRIL 3RD:—MORNING, 9 TO 12.

ANGLO-SAXON.

A. Wæs ymb syx hund wintra and hundeahtatig from thære drihtenlican menniscnesse thætte seo æfeste Cristes theowe Hild abbudisse thæs mynstres, the is cweden Streoneshalh, swa swa we beforan sædon, æfter monigum heofonlicum dædum, the heo on eorthan dyde, to onfonne thæs heofonlican lifes mede, ond heo of eorthan alædded leorde thy fifteothan dæge Kalendarum Decembrium, mid thy heo hæfde syx and syxtig wintra. Thæm wintrum todældum efenlice dæle, threo ond thrittig tham ærestum heo æthellice gefylde in woruldhade drohtiende; ond efen feola tha æfterfylgendan heo æthelicor in munuclife Drihtne gehalgade. Wæs heo eac swylce æthele in weoruldgebyrdum thæt heo wæs Edwines thæs cyninges nean dohtor, se wæs Hereric haten. Ond thy cyninge he to bodunge ond to lare thære eadegan gemynde Paulinus thæs ærestan biscopes Northanhymbra Cristes geleafan ond geryno onfeng, ond thone unwemme geheold oth thæt the he geearnode thæt he to his gesihthe becom.

BEDE IV., 23.

B. Hwearf tha to helle hæletha bearnum
meotod thurh mihte ; wolde manna rim,
fela thusenda forth gelædan
up to ethle. Tha com engla sweg,
dyne on dægred : hæfde drihten seolf
feond oferfohten ; wæs seo fæhthe tha gyt
open on uhtan tha se egsa becom.
Let tha upfaran eadige sawle,
Adames cyn ; and ne moste Efe tha gyt
wlitan in wuldre, ær heo wordum cwæth :
"Ic the æne abealh, ece drihten,
tha wit Adam twa eaples thigdon
thurh næddran nith, swa wit na ne sceoldon.
Gelærde unc se atola, se the æfre nu
beorneth on bendum, thæt wit blæd ahton,
haligne ham, heofon to gewalde.
Tha wit thæs awærgdan wordum gelyfdon,
namon mid handum on tham halgan treo
beorhte blæda. Unc thæs bitere forgeald,
tha wit in this hate scræf hweorfan sceoldon
and wintra rim wunian seoththan,
thusenda feolo, thearle onæled.

Crist and Satan, 400-42

C. Swa is dryhten god dreama rædend
eallum eathmede othrum gesceaftum
dugutha gehwylcre, butan dracan anum
attres ordfruman : thæt is se ealda feond,
thone he gesælde in susla grund
and gefetrade fyrnum teagum,
bitheahte threanydum and thy thriddan dæge
of digle aras, thæt the he death fore us
threo niht tholade, theoden engla,
sigora sellend. Thæt wæs swete stenc
wlitig and wynsum geond woruld ealle ;
siththan to tham swicce sothfæste men
on healfa gehwone heapum thrungon
geond ealne ymbhwyrft eorthan sceata.
swa se snottra gecwæth Sanctus Paulus :
"Monigfealde sind geond middangeard
god ungnythe, the us to giefe dæleth
and to feorhnere fæder ælmihtig
and se anga hyht ealra gesceafta
uppe ge nithre!" Thæt is æthele stenc.

Pauther (55-74).

EARLY ENGLISH.

[z stands for g, h, and s as the case may be.]

1. Translate:

(*a*) For-why here we er, on many wyse,
Alle vmset with sere enmys,

(*b*) For here lyues nan vnder heuen-ryke,
That can telle til what the ded es lyke.

(*c*) He shuld for ferdnes titter it fle
Than any deuel that he mught se.

(*d*) And leues wele, it es no lye,
The felde hat Flemangrye
That king Edward was in.

(*e*) Ilk Inglis man on others rig,
Ouer that water er thai went;
To batail er thai baldly big,
With brade ax and with bowes bent.

(*f*) & than be-kenned he the kouherde · to *crist* & to hal alwes,
& busked forth with that barn · bliue on his gate.
the kouherde kayred to his house · karful in hert,
& neiz to-barst he for bale · for the barnes sake.
and whan his wiif wist · wittow for sothe,
how that child from here warde · was wente for euer-more,
ther nis man on this mold · that mizt halfe telle
the wo & the weping . that womman made.

(*g*) 'Enter in thenn, quod he · ' & haf thi wyf with the,
Thy thre sunez with-outen threp · & her thre wyuez;
Bestez, as I bedene haue · bosk ther-inne als,
& when ze arn staued styfly · stekez yow therinne;
Vuche burde with her barne · the byggyng thay leuez.
& bowed to the hyz bonk · ther brentest hit were,
& heterly to the hyze hyllez · thay [h]aled on faste;

(*h*) Bot the burne bynne borde · that bod to hys come,
Banned hym ful bytterly · with bestes alle samen;
He sechez an other sondezmon · & settez on the doune;

(*i*) Suche a rothun of a reche · ros fro the blake,
Askez vpe in the ayre · & vsellez ther flowen,
As a fornes full of flot · that vpon fyr boyles,
When bryzt brennande brondez · ar bet ther-an-vnder.

(*j*) 'Thou dotest daffe,' quath heo · ' Dulle are thi wittes.
Hit is a kuynde knowynge · that kenneth the in herte

For to loue thi louerd · leuere then thi-seluen ;
No dedly sunne to do · dyze thauz thou scholdest.
This I trouwe beo treuthe ! · hose con teche the betere,
Loke thou suffre him to seye · and seththe teche hit forthure
For thus techeth us his word · (worch thou ther-aftur)
that loue is the leuest thing · that vr lord asketh,
And eke the playnt of pees ; · prechet in thin harpe
Ther thou art Murie at the mete · whon me biddeth the zedde;
For bi kuynde knowynge in herte · Cumse[th] ther a Fitte.

2. Give an outline of the second tale from Gower.

B. A. HONOURS IN ENGLISH.

SHAKSPERE.

SATURDAY, APRIL 6TH :—MORNING, 9 TO 12.

1. Discuss pre-Shaksperian plays which serve to bring Shakspere's method and art into clearer prominence.

2. What methods of investigation may be applied to determine the order of Shakspere's plays? Use the plays you have studied in illustration.

3. (*a*) Show in what way L.L.L has been connected with Puritanism.
(*b*) Give some account of the two plays of Chapman which take their title from Biron.

4. (*a*) Write on Puck in folk-lore and in our literature.
(*b*) What was said regarding the source of "Pyramus and Thisbe"? In what way have Bottom and Robert Greene been connected?

5. State as precisely as you can where the following extracts occur and name the speakers :

(*a*) When roasted crabs hiss in the bowl
(*b*) Lord, what fools these mortals be
(*c*) Swift as a shadow, short as any dream
(*d*) I would fain die a dry death
(*e*) If she be made of white and red
Her faults will ne'er be known
(*f*) But she being mortal of that child did die
(*g*) Not a word with him but a jest
(*h*) A woman that is like a German clock
(*i*) It shall to the barber's with your beard
(*j*) I did enact Julius Caesar
(*k*) Both w rbling of one song in one key

(*l*) Is not this something more than fantasy ?
What think you on 't ?

(*m*) A lover's eyes will gaze an eagle blind
A lover's ear will hear the lowest sound

(*n*) Enough ; hold or cut bow strings

(*o*) Now cracks a noble heart

(*p*) In a cowslip's bell I lie

(*q*) we are such stuff
As dreams are made on

(*r*) No place indeed should murder sanctuarize

(*s*) You are three men of sin

(*t*) They'll take suggestion as a cat laps milk

6. Classify Hamlet's monologues and give the substance of the monologue beginning with "To be or not to be."

7. Exhibit the characters of Laertes and Prospero.

8. Give an outline of the Second Act of the *Tempest* and of any Act of *Hamlet* not being the first or last

[Confine yourself to two pages in all.]

B. A. HONOURS IN ENGLISH.

Tennyson, *Idylls of the King*.

Tuesday, April 9th —Morning, 9 to 12.

1. Write on the characteristics of the poetry of Tennyson as seen in the Idylls.

2. Write a brief note on (*a*) the cauldron of the Head of Hades, (*b*) Sir Marhaus, (*c*) La matière de Bretagne, (*d*) the misfortunes of Arthur.

3. *The Coming of Arthur.* Explain :
(*a*) The two aspects in which Arthur is regarded.
(*b*) The *ninth* wave.
(*c*) The inscriptions on Excalibur.
How does Tennyson differ from his source in regard to the sending for Guinivere ?

4. (*a*) What five versions of the story of Geraint and Enid were mentioned ? Which did Tennyson use ?

(*b*) Mention five important modifications of the story in the *Marriage of Geraint.*

(*c*) Make a note, brief and precise, on Gwiffert Petit and Earl Owain.

5. (*a*) *Balin and Balan.*—From what source did Malory take the story?

(*b*) Give the substance of Vivien's song and show its bearing on the theme of the *Idylls.*

6. *Merlin and Vivien.* (*a*) Write on Nennius and Geoffrey of Monmouth.

(*b*) Refer to important points discussed in connection with the matter and manner of Tennyson's poem.

7. *Lancelot and Elaine.*—Show how Tennyson has modified the story and why.

8. Describe:

(*a*) the passing of Sir Galahad,
(*b*) the combat of Sir Lancelot and Pelleas.
(*c*) The Tournament of the Dead Innocence.

9. "Yet think not that I come to urge thy crimes,
I did not come to curse thee, Guinevere."
Give the substance of the speech to the end.

10. State where and in what connection the following lines are found and explain any allegory.

(*a*) New-old and shadowing Sense at war with Soul.
(*b*) And all the little fowl were flurried at it
(*c*) And o'er it are three passings, and three knights
defend the passings.
(*d*) When every morning brought a noble chance,
And every chance brought out a noble knight
(*e*) To break the heathen and uphold the Christ
(*f*) for every knight
Had whatsoever meat he long'd for served
By hands unseen.
(*g*) Tintagil, half in sea, and high on land
(*h*) I have had my day and my philosophies
(*i*) and one
Is larger limbed than you are.
(*j*) And all the hall was dim with steam of flesh.

(*k*) And dallies with him in the mouth of Hell.
(*l*) A league of mountain full of golden mines.
(*m*) Rapt on his face as if it were a God's.
(*n*) Then flash'd a yellow gleam across the world
(*o*) the gilded parapets were crown'd
With faces.

B. A. HONOURS IN ENGLISH.

POPE: *An Essay on Criticism*, *An Essay on Man*.

FRIDAY, APRIL 12TH:—MORNING, 9 TO 12.

1. Show the influence of Cartesian philosophical principles and method on literary conceptions and procedure in France towards the end of the seventeenth century.

2. Explain fully the value and scope of the precept "Follow Nature," as understood by the poets of England and France, during the same period. Quote if possible, in support of your positions.

3. Give some account of the principal sources from which Pope drew materials for *An Essay on Criticism*. Give specific illustrations of his indebtedness.

4. Write notes on:—Pope's conception of the character and functions of a good critic, the optimism of *An Essay on Man*, pantheistic tendencies of Pope's teaching.

5. "Where mystery begins, religion ends." What consequences of the acceptance of this dictum are traceable in the *theodicy* of Bolingbroke and Pope? Quote illustrative passages.

6. Contrast, with the help of illustrative examples, the principal forms of iambic pentameter couplets; and discuss with some detail, the form preferred by Pope.

B. A. HONOURS IN ENGLISH.

MILTON, *Lycidas*; SHELLEY, *Adonais*; MATTHEW ARNOLD, *Thyrsis*.

SATURDAY, APRIL 13TH:—MORNING, 9 TO 12.

A.

1. Give an account of Edward King. What is the source of the title of Milton's poem?

2. Name speakers in *Lycidas* and give the substance of what they say.

3. Mention the various elements you find in *Lycidas*. Examine them critically.

4. Give an account of John Keats.

5. Name speakers in *Adonais* and give the substance of what they say.

6. Mention the various elements you find in *Adonais*. Examine them critically.

B.

[*Write the answers to B in separate books.*]

7. Explain :

(*a*) Here came I often, often in old days—
Thyrsis and I; we still had Thyrsis then.
(*b*) He went; his piping took a troubled sound
Of storms that rage outside our happy ground;
(*c*) And blow a strain the world at last shall heed.
(*d*) Hear it from thy broad lucent Arno-vale.
(*e*) For thee the Lityerses-song again,
Young Daphnis with his silver voice doth sing—
(*f*) Still, still these slopes, 'tis clear,
Our Gipsy-scholar haunts, outliving thee!
(*g*) Thou too, O Thyrsis, on like quest wast bound.
(*h*) A stormy note
Of men contention — tost, of men who groan.
(*i*) Too rare, too rare, grow now my visits here.
(*j*) Roam on! The light we sought is shining still.

8. Show the connection between the *Scholar-Gypsy* and *Thyrsis*, and show in what direction the mind of Arnold seems to have moved in the interval between the writing of the two poems.

9. Write a short criticism of the poetry of Matthew Arnold, and show by quotation or reference what characteristics of it are exemplified in *Thyrsis*.

B. A. HONOURS IN ENGLISH.

MŒSO-GOTHIC.

THURSDAY, APRIL 18TH:—MORNING, 9 TO 12.

A.

1. Mention the stems of the strong nouns in Mœso Gothic, and the genders concerned. Give the nominative plural of a noun belonging to each.

2. Decline (*a*) *niujis* in the fem. sing. and pl.; (*b*) *alls* in the neut. sing. and pl.; (*c*) *twai* in the masc. sing.; (*d*) *ik* in the dual.; (*e*) *sa* in the fem. and neut. sing. and pl.

3. Conjugate a strong and a weak verb throughout.

4. Examine the changes of the ablaut system in Aryan and Teutonic.

B.

1. Translate literally :

(*a*) gawasiths taglam ulbandaus
(*b*) suns *haihait* ins
(*c*) stibnai mikilai
(*d*) wairth hrains
(*e*) at motai
(*f*) gaurs in daubithos hairtins ize.
(*g*) ak andi habaith.
(*h*) laisida ius in gajukom manag
(*i*) allata *afletada* thata frawaurhte sunum manne
(*j*) minnist allaize fraiwe
(*k*) inuh gajukon
(*l*) jah spillodedun im thaiei *gasehwun*
(*m*) thata haubith is ana mesa
(*n*) sware mik blotand
(o) let faurthis sada wairthan barna

2. Give the principal parts of the verbs in italics. Parse fully (*h*) and (*i*).

3. Translate :

(*a*) Jah gahwotjands imma, suns ussandida ina, Jah kwath du imma saihw ei mannhun ni kwithais waiht; ak gagg thuk silban ataugjan gudin jah atbair fram gahraineinai theinai thatei anabauth Moses,du weitwodithai im.

(*b*) Aththan atgaggand dagos than afnimada af im sa bruthfaths, jah than fastand in jainamma daga.

(*c*) "Ei saihwandans saihwaina jah ni gaumjaina, jah hausjandans haus jaina jah ni frathjaina, nibai hwan gawandjaina sik jah afletaindau im frawaurhteis."

(*d*) Jah inn gaggandan ina in skip bath ina, saei was wods, ei mith imma wesi.

(*e*) Jah gaurs waurthans sa thiudans in thize aithe jah in thize mith anakumbjandane ni wilda izai ufbrikan.

(*f*) Innathro auk us hairtin manne mitoneis ubilos usgaggand : kalkinassjus, horinassjus, maurthra, thiubja, faihufrikeins, unseleins, liutei, aglaitei, auggo unsel, wajamereins, hauhhairtei, unwiti.

B.A. HONOURS IN ENGLISH.

MORE, *Utopia;* MATTHEW ARNOLD, *Essays in Criticism* (Second Series).

FRIDAY, 19TH APRIL:—MORNING, 9 TO 12

1. Write a paragraph on each of the following:
   (*a*) More at Oxford,
   (*b*) More in Parliament,
   (*c*) More as a Courtier,
   (*d*) More's attitude towards the Church,
   (*e*) Different Editions of Utopia.

2. ((*a*) What is the historical ground work of Raphael Hythlodaye's Narrative?
   (*b*) Give the substance of Raphael's criticism of English Criminal Law.
   (*c*) Of his remarks on territorial expansion.

3. By what books was More most influenced in writing Utopia? In what points has he been seconded by later writers on Ideal Commonwealths?

4. Explain and comment upon the philosophy of the Utopians, and its connection with their religion: their marriage law; attitude toward suicide; funeral customs.

5. Write on the relations of Utopia with the outside world, *or* on the domestic life of the Utopians, including their scheme of daily work.

6. What is Arnold's estimate of Chaucer? Of Dryden? Of Dowden as a biographer?

7. Name the authors from whom the following passages are quoted; show Arnold's purpose in using them, and to what extent he agreed with them:
   (*a*) The cloud of glory playing round a classic is a mist as dangerous to the future of a literature as it is intolerable for purposes of history.
   (*b*) No nation has treated in poetry moral ideas

with more energy and depth than the English nation.

(*c*) Let us make up in the tavern for the time which we have wasted in the mosque.

(*d*) Glory after all is the thing which has the best chance of not being altogether vanity.

(*e*) I have no trust whatever in poetry.

8. What does Arnold mean by *the Anglo-Saxon Coatagion?* In what does he find its remedy?

9. Write on
(*a*) The learning of Gray,
(*b*) The personality of Byron.

10. Discuss Tolstoi's creed and Arnold's criticism of it.

B. A. HONOURS IN ENGLISH.

ANGLO-SAXON: BEOWULF.

MONDAY, APRIL 22ND:—MORNING, 9 TO 12.

1. Translate and annotate:

(*a*) Swa tha mæl-ceare maga Healfdenes
singala seath ; ne mihte snotor hæleth
wean onwendan ; wæs thæt gewin to swyth,
lath ond longsum, the on tha leode becom,
nyd-wracu nith-grim, niht-bealwa mæst.
Thæt fram ham gefrægn Higelaces thegn,
god mid Geatum, Grendles dæda ;
se wæs mon-cynnes mægenes strengest
on thæm dæge thysses lifes,
æthe ond eacen. Het him yth-lidan
godne gegyrwan ; cwæth, he guth-cyning
ofer swan-rade secean wolde,
mærne theoden, tha him wæs manna thearf.
Thone sith-fæt him snotere ceorlas
lyt-hwon logon, theah he him leof wære ;
hwetton hige-[r]ofne, hæl sceawedon.

(*b*) Him wæs ful boren, ond freond-lathu
wordum bewægned, ond wunden gold
estum geeawed, earm-[h]reade twa,
hrægl ond hrin gas, heals-beaga mæst,
thara the ic on foldan gefrægen hæbbe.
Nænigne ic under swegle selran hyrde
hord-madmum hæletha, syththan Hama ætwæg

to thære byrhtan byrig Brosinga mene,
sigle ond sinc-fæt ; searo-nithas *fleah*
Eormenrices, geceas ecne ræd.
Thone hring hæfde Higelac Geata,
nefa Swertinges, nyhstan sithe,
siththan he under segne sinc ealgode,
wæl-reaf werede ; hyne wyrd fornam,
syththan he for wlenco wean ahsode
fæhthe to Frysum. He tha frætwe wæg
eorclan-stanas, ofer ytha ful,
rice theoden ; he under rande gecranc.

(*c*) Geseah tha on searwum sige-eadig bil,
eald sweord eotenisc, ecgum thyhtig,
wigena weorth-mynd ; thæt [wæs] wæpna cyst,
buton hit wæs mare thonne ænig mon other
to beadu-lace ætberan meahte,
god ond geatolic, giganta geweorc.
He gefeng tha fetel-hilt, freca Scyldinga
hreoh ond heoro-grim hring-mæl gebrægd,
aldres orwena yrringa sloh,
thæt hire with halse heard grapode,
ban-hringas bræc ; bil eal thurhwod
fægne flæsc-homan ; heo on fiet gecrong.
Sweord wæs swatig ; secg weorce gefeh.

(*d*) Tha wæs gegongen guman unfrodum
earfothlice, thæt he on eorthan geseah
thone leofestan lifes æt ende
bleate gebæran. Bona swylce læg,
egeslic eorth-draca ealdre bereafod,
bealwe gebæded. Beah-hordum leng
wyrm woh-bogen wealdan ne moste,
ac hine irenna ecga fornamon,
hearde, heatho-scearde homera lafe,
thæt se wid-floga wundum stille
hreas on hrusan hord-ærne neah ;
nalles æfter lyfte lacende hwearf
middel-nihtum, mathm-æhta wlonc
ansyn ywde, ac he eorthan gefeoll
for thæs hild-fruman hond-geweorce.

(*e*) "Sigeferth is min nama (cweth he), ic eom Secgena leod,
wreccea wide cuth. Fela ic weana gebad,
heardra hilda ; the is gyt her witod,
swæther thu sylf to me secean wylle."

Tha wæs on wealle wæl-slihta gehlyn,
sceolde cellod bord cenum on handa,
ban-helm berstan. Buruh-thelu dynede,
oth [thæt] æt thære guthe Garulf gecrang,
ealra ærest eorth-buendra,
Guthlafes sunu, ymbe hyne godra fela.
Hwarf [f]lacra hræw hræfen, wandrode
sweart and sealo-brun; swurd-leoma stod
swylce eal Finns buruh fyrenu wære.

2. Scan the first five lines of Ext. (*a*).

3. (*a*) Make notes on
(*a*) stod on stapole (927)
(*b*) wéa wid scofen (937)
(*c*) hom.géap (82)
(*b*) Take any seven difficult and important passages which were discussed in the lectures and elucidate them.

4. Write on the construction of Herot and on Teutonic hall structures generally.

EXAMINATION FOR THE EARLY ENGLISH TEXT SOCIETY'S PRIZE.

BEOWULF.

FRIDAY, APRIL 12TH:—MORNING, 9 TO 12.

1. (*a*) Write on the mythical and historical element in *Béowulf*.
(*b*) State various theories as to the locality of the events of the poem.

2. Discuss the poetry of *Béowulf* in regard to quality and method.

3. Translate and explain when necessary:
(*a*) 689 710.
(*b*) 1193-1215.
(*c*) 2795-2821.

4. Describe Heorot.

EXAMINATION FOR THE EARLY ENGLISH TEXT SOCIETY'S PRIZE.

Havelok the Dane.

FRIDAY, APRIL 12TH :—AFTERNOON, 2 TO 5.

1. Write on the following subjects :—

(*a*) References to *Havelok the Dane* in our early literature.

(*b*) Traditions of Denmark and Lincolnshire.

(*c*) The Tale of Havelok's reign.

2. Translate : ll. 339-357.
ll. 465-544.

3. What parts do Bernard Brun, Godrich and Ubbe play in the story ?

4. Examine the extt. of question 2 grammatically

5. Give the meaning of em, kippe, parred, rippe, brini, totede, sket, grom, thartekene, unride, and make etymological notes.

6. Give an outline of the two passages which seem to you the most poetic and impressive.

FIRST YEAR.

HISTORY.

THURSDAY, APRIL 4TH :—AFTERNOON, 3 TO 5.

1. Write what you know about :
(*a*) The Roman Law ;
(*b*) The Good Emperors ;
(*c*) Diocletian ;
(*d*) Constantine the Great.

2. Describe the division of the Carolingian Empire.

3. Discuss :
(*a*) The causes of Feudalism ;
(*b*) Feudal rights and duties ;
(*c*) Mediaeval serfage.

4. Under what rulers, and by what means, did mediaeval France become a compact state ?

5. Name the Hohenstaufen emperors, and write an account of their contests with the Papacy.

6. Discuss:
(*a*) The Avignonese Papacy;
(*b*) The Schism;
(*c*) The Council of Constance.

THIRD YEAR

HISTORY.

TUESDAY, APRIL 9TH.—MORNING, 9 to 12.

1. Sketch the fortunes of Visigoths and Ostrogoths from the time of Ulfilas to the Battle of the Netad.

2. Compare Theodoric and Charlemagne, paying regard to character, situation and principles of government.

3. Give the main episodes in the contest of Christianity with hostile forms of religion from 632 to 952.

4. (*a*) Review the condition of Europe in the year 1000, bearing in mind the following points: The geographical extent of the different states; the chief centre or centres of culture; the stage which had been reached in the progress of modern civilization.

(*b*) What forces, institutions and social conditions of the year 1000 can be associated with a Roman origin; a German origin; or with an origin which seems partly Roman and partly German?

Illustrate your statements as fully as possible by concrete examples.

5. Illustrate the international eminence of the Holy Roman Empire.

6. Examine in detail the relations of Frederick II. with the Papacy.

7. Indicate on the map the location of Pavia; Aquileia; the death place of Alaric; Pannonia; Neustria; Laon; Reims; Tours; Saxony in the days of Charlemagne; the *Patrimonium Petri*.

8. Make brief, clear notes on: The chronological limits of the Middle Ages; Mainz and Fulda; Liutprand's *Legatio;* Boso of Vienne; comes and dux; Compostella; the place at which Attila suffered his greatest check; the extinction of Arianism among both Romans and Germans; Khaled; the character of the Novels.

THIRD YEAR.

HISTORY.

SATURDAY, APRIL 13TH:—AFTERNOON, 2 TO 5.

1. What are the main episodes of imperial history from 1039 to 1152?

2. "I know nothing of those ages which knew nothing." What would be the truth of this jest if applied to the 12th and 13th centuries? Can you give any reasons in defence of a contrary view?

3. What antagonisms did the Avignonese papacy arouse, and to what lengths, in each case, did they proceed?

4. Show fully how Italian culture was affected in the 14th and 15th centuries by:

(*a*) Hellas.
(*b*) Constantinople.

5. Examine the nature of despotism in Italy at the time of the Renaissance, with a view to explaining:

(*a*) Its origin.
(*b*) Its operation.
(*c*) Its effect upon statecraft.

6. (*a*) Discuss the causes and character of the social and agrarian disturbances which arose in Germany during the early years of the Reformation.

(*b*) In what way are they to be associated with the revolt from Rome?

7. Indicate on the map the position of the following towns and districts: Pisa; Constance; Basel; Worms; the duchy of Burgundy; Trier; Avignon; Orleans; Wittenberg; Tuscany.

8. Make brief, clear notes on: Gog and Magog; the Assize of Jerusalem; the characteristics of a diet at Roncgalia; the divisions of the "Purgatorio"; the results of the Black Death; Du Guesclin and chivalry: Aeneas Sylvius; the pulpits of Niccolo Pisano; the school of Deventer; Luther and Staupitz.

HONOURS IN HISTORY.

THE REFORMATION.

SATURDAY, MARCH 30TH—AFTERNOON, 2 TO 5.

1. Discuss the differences which existed between the following representative men, having regard to the character of their views and to their influence upon contemporary action :—

(*a*) Luther and Zwingli ;
(*b*) Loyola and Calvin ;
(*c*) Erasmus and Lefèvre.

2. What do you consider to have been the main characteristics of political life in Europe between 1521 and 1564 ? Illustrate your statements and pay particular regard to the blending of political and religious motives.

3. Describe the state of Germany in 1517, bearing especially in mind the reforms which had been attempted during the reign of Maximilian.

4. Investigate the personal relations of Luther with the Electors of Saxony and Philip of Hesse.

5. Examine the events of the decade, 1552-1562, with a view to showing their effect upon the Council of Trent.

6. Make an annotated list of great battles and treaties, 1498-1559. The dates should be given in each case, together with the results of the battles and the chief articles of the treaties.

7. Write brief, clear notes on the following subjects : Sarpi's attitude towards Protestantism ; the intellectual relations of the two Sozzini ; the Edict of Romorantin ; the case of Louis de Berquin ; the Leipsic Interim ; Cappel ; Castellion and Calvin ; the Theatines ; Parma and Piacenza ; the oration of Nicholas Cop.

CONSTITUTIONAL HISTORY OF ENGLAND TO 1307.

APRIL 11TH—MORNING, 9 to 12.

1. (*a*) Describe the organization of Township, Hundred and Shire
(*b*) Trace the fortunes of local government in England after the Norman Conquest.

2. What was the character of Kingship in England prior to the Norman Conquest? In answering this question pay special regard to such points as: origin; king and church; king and witan; king and people; the period of Ethelred II.

3. Explain the character of the Exchequer system, and describe the fiscal expedients which were employed by the Crown from 1066 to 1189.

4. Investigate:

(*a*) the evidence which Domesday affords concerning the social and economic state of England;

(*b*) the principles for which Anselm contended;

(*c*) the early operations of the jury system in England.

5. In what consists the chief constitutional importance of the following measures?

(*a*) Charter of Liberties;

(*b*) Assize of Northampton;

(*c*) *De Religiosis;*

(*d*) *Quia Emptores;*

(*e*) Statute of Winchester.

6. Pursue the evolution of Parliament through its different stages to 1295.

7. Makes brief, clear notes on: theow; aetheling; frankpledge; "papal usurpations;" sac and soc; livery of seisin; the three lawful aids; knight's fee; *curia regis in banco;* the Iter of 1194.

FRENCH.

PREMIERE ANNÉE.

FRANÇAIS.

15 AVRIL 1901, DE 9 HEURES A MIDI.

(*Questions expressed in French must be answered in French.*)

I. Traduire :—

Maître Jacques.—Monsieur, puisque vous le voulez, je vous dirai franchement, qu'on se moque partout de vous, qu'on nous jette de tous côtés cent brocards à votre sujet, et que l'on n'est point plus ravi que de vous tenir aux chausses, et de faire sans cesse des contes de votre lésine. L'un dit que vous faites imprimer des almanachs particuliers où vous faites doubler les quatre-temps vigiles, afin de profiter des jeûnes où vous obligez votre monde ; l'autre que vous avez toujours une querelle toute prête à faire à vos valets dans le temps des étrennes, ou de leur sortie d'avec vous, pour vous trouver une raison de ne leur donner rien. Celui-là conte qu'une fois vous fîtes assigner le chat d'un de vos voisins, pour vous avoir mangé un reste d'un gigot de mouton ; celui-ci, que l'on vous surprit, une nuit, en venant dérober vous-même l'avoine de vos chevaux ; et que votre cocher, qui était celui d'avant moi, vous donna dans l'obscurité je ne sais combien de coups de bâton, dont vous ne voulûtes rien dire Enfin, voulez-vous que je vous dise ? on ne saurait aller nulle part où l'on ne vous entende accommoder de toutes pièces. Vous êtes la fable et la risée de tout le monde, et jamais on ne parle de vous que sous les noms d'avare, de ladre, de vilain et de fesse-mathieu.

L'AVARE.

II. Rendre en anglais les expressions idiomatiques et les proverbes suivants :

(*a*) On n'a que faire d'avoir peur de trop charger la complaisance. (*b*) Tout cousu de pistoles. (*c*) Qui se sent morveux qu'il se mouche. (*d*) Il en passera par tout ce que vous en prescrirez. (*e*) Toutes ces galanteries qui sentent tant soit peu l'échelle. (*f*) Il lui tarde de finir son ouvrage. (*g*) La chose est difficile, mais nous en viendrons à bout. (*h*) Le jeu n'en vaut pas la chandelle. (*i*) A l'œuvre on connaît l'artisan. (*j*) Couper l'herbe sous les pieds de quelqu'un.

III. Traduire :

On se cache, on tremble à l'environ ;
Et cette alarme universelle
Est l'ouvrage d'un moucheron.
Un avorton de mouche à cents lieux le harcelle ;
Tantôt pique l'échine, et tantôt le museau.
Tantôt entre au fond du naseau.
La rage alors se trouve à son faîte montée.
L'invisible ennemi triomphe, et rit de voir
Qu'il n'est griffe ni dent en la bête irritée,
Qui de la mettre en sang ne fasse son devoir.
Le malheureux lion se déchire lui-même,
Fait résonner sa queue à l'entour de ses flancs,
Bat l'air, qui n'en peut mais ; et sa fureur extrême
Le fatigue, l'abat : le voilà sur les dents.
L'insecte du combat se retire avec gloire.

IV. Faire l'analyse *d'un* des caractères suivants :
Bernard, Valère, Harpagon.

V. Raconter le dénoûment de *l'Avare.*

VI. Traduire : *Imagination in John Bunyan.*

Bunyan is almost the only writer who ever gave to the abstract the interest of the concrete. In the works of many celebrated authors men are mere personifications. We have not a jealous man, but jealousy; not a traitor, but perfidy ; not a patriot, but patriotism. The mind of Bunyan, on the contrary, was so imaginative that personifications, when he dealt with them, became men. A dialogue between two qualities in his dream has more dramatic effect than a dialogue between two human beings in most plays.

MACAULAY.

VII. Traduire (à livre ouvert :)

My pretty little dog one day broke his leg. I consulted a friend of mine, a veterinary surgeon, who tended my pet so carefully that in a few weeks he was on his legs again. Some time after, happening to meet my friend, I was not a little surprised to hear that my dog had ventured to call upon him. "One morning," said the surgeon, "I heard a scratching at my door. Surprised to hear a patient announce himself in this strange fashion, I opened the door. But whom should I see but your little dog, who began to lick my hand, and then introduced to me another dog—with a broken leg!"

VIII. When is an English present tense rendered by a French future and an English perfect by a French present? Give examples.

IX. Translate :—What do you owe me? Ought you not to have paid? I was to pay to-day and I ought to have done so. You must have thought of it.

X. Form sentences showing the meaning of the following adjectives placed (*a*) *before* and (*b*) *after* the noun :—*seul, même, nouveau, mauvais, grand, noir, ancien, dernier.*

XI, Put past participles for infinitives in the following :—Les livres que j'ai *acheter* sont *venir*. L'avez-vous *faire* relier ? Oui, je les ai *voir* relier. Les hommes que j'ai *voir* relier étaient très habiles.

XII. Distinguish between *oui, si,* (yes); *dans, en ; servir, servir à, servir de ; réussir, succéder ; plus, davantage.*

XIII. Racontez l'histoire de *La dernière classe*, ou celle de *La mule du pape*, (150 mots environ.)

PREMIÈRE ANNÉE.

FRANÇAIS.

15 AVRIL 1901—De 2 A 5 HEURES.

I. Analyser le *Gendre de Monsieur Poirier.*

II. Décrire une course de taureaux d'après A. Dumas. (150 mots.)

III. Raconter *un* des récits suivants :

1. Jeux corinthiens (La lutte).
2. La prise du bastion St. Gervais, (150 mots.)

IV. Raconter *un* des contes suivants :

1. Un cœur simple.
2. La légende de St. Julien l'Hospitalier. (250 mots.)

V. Traduire le passage suivant :

Il s'avança dans une avenue de grands arbres, formant avec leurs cimes comme un arc de triomphe, à l'entrée d'une forêt. Un chevreuil bondit hors d'un fourré, un daim parut dans un carrefour, un blaireau sortit d'un trou, un paon sur le gazon déploya sa queue ;—et quand il les eut tous occis, d'autres chevreuils se présentèrent, d'autres daims, d'autres blaireaux, d'autres paons, et des merles, des geais, des renards, une infinité de bêtes, à chaque pas plus nombreuses. Elles tournaient autour de lui, tremblantes, mais Julien ne se fatiguait pas de tuer, tour à tour bandant son arbalète, dégaînant l'épée pointant du coutelas, et ne pensait à rien, n'avait souvenir de quoi que ce fût. Il était en chasse dans un pays quelconque, depuis un temps indéterminé, et par le seul fait de sa propre existence tout s'accomplissait avec la facilité que l'on éprouve dans les rêves. Un spectacle extraordinaire l'arrêta. Des cerfs emplissaient un vallon ayant la forme d'un cirque, et, tassés les uns près des autres, ils se

réchauffaient avec leur haleine que l'on voyait fumer dans le brouillard.

DEUXIÈME ANNÉE.

FRANÇAIS.

15 AVRIL 1901—DE 9 HEURES à MIDI.

(Prière de faire toutes les réponses en français.)

I. (*a*) Traduire en Anglais :

Vous n'êtes que le gant, et moi, je suis la main.
Si tu n'obéis pas, si tu n'es pas demain
Chez toi, pour préparer ce qu'il faut que je fasse,
Si tu dis un seul mot de *tout ce qui se passe*,
Si tes yeux, si ton geste en laissent rien percer,
Celle pour qui tu crains, d'abord, pour commencer,
Par ta folle aventure, en cent lieux répandue,
Sera publiquement diffamée et perdue.
Puis elle recevra, ceci n'a rien d'obscur,
Sous cachet, *un papier*, que je garde en lieu sûr,
Ecrit, te souvient-il avec quelle écriture ?
Signé, tu dois savoir de quelle signature ?
Voici ce que ses yeux y liront.

(*b*) Donner le contexte de cet extrait et expliquer les allusions des mots en italiques.

II. (*a*) Faire connaître le dénouement de Ruy Blas.

(*b*) Indiquer quelques défauts et quelques qualités de ce drame.

III. (1) Rendre en anglais ces expressions prises de *La Question d'Argent* : (*a*) Figurez-vous que je suis criblée de dettes. (*b*) Comment vous y êtes-vous prise pour vous endetter ? (*c*) Ils en seraient pour leurs frais. (*d*) Nous savons bien à quoi nous en tenir sur le monde. (*e*) Je vous mettrai au courant de ce que j'aurai fait pour vos protégés. (*f*) En un mot, vous me flanquez à la porte. (*g*) Les affaires, c'est bien simple, c'est l'argent des autres.

(2.) Qui prononce ces dernières paroles ? Faites connaître ce caractère.

IV. (*a*) Tracer brièvement l'origine du théâtre en France, (*b*) et décrire les diverses *associations* qui s'y rattachèrent.

V. Développer cette proposition-ci : La poésie se développa sous trois formes principales : les *romans*, les *chansons*, et les *contes* ou *fabliaux*.

VI. *a* Indiquer les caractères du XV*e* siècle, *b*) et les principaux poètes et historiens qui y fleurirent.

VII. Traiter de la vie et de l'œuvre de *Ronsard* ou de *Malherbe;* et de *Rabelais* ou de *Calvin.*

Traduire en français :

THE DEATH OF NELSON.

VII. There was reason to suppose, from the appearances upon opening his body, that in the course of nature he might have attained, like his father, to a good old age. Yet he cannot be said to have fallen prematurely, whose work was done, nor ought he to be lamented, who died so full of honours, and at the height of human fame. The most triumphant death is that of the martyr; the most awful that of the martyred patriot; the most splendid that of the hero in the hour of victory, and if the chariots and the horses of fire had been vouchsafed for Nelson's translation, he could have scarcely have departed in a brighter blaze of glory. He has left us, not indeed his mantle of inspiration, but a name and an example which are at this hour inspiring thousands of the youth of England—a name which is our pride, and an example which will continue to be our shield and our strength. Thus it is that the spirits of the great and the wise continue to live and to act after them.

SOUTHEY.

IX. (*a*) A quelle occasion *Athalie* a-t-elle été écrite? (*b*) Exposer le *sujet,* le *nœud* et le *dénouement* de cette tragédie.

DEUXIÈME ANNÉE.

FRANÇAIS.

15 AVRIL 1901. DE 2 À 5 HEURES.

Questions V and **VI** are for Affiliated Colleges only, to be taken instead of Questions II and IV.

Answer the questions in French.

I. Traduire.

Ce poète, il faut le dire, était plus singulièrement accoutré que l'effigie de Mardi-Gras, quand on la mène brûler au mercredi des Cendres, ou qu'un de ces mannequins qu'on suspend dans les vergers ou dans les vignes pour effrayer la gourmandise des oiseaux. Un feutre roussi par le soleil, lavé par la pluie, ceint d'un cordon de

graisse, accrété, en guise de plumet, d'une plume de coq rongée aux mites, plus comparable à une chasse à filtrer d'apothicaire qu'à une coiffure humaine, lui descendait jusqu'au sourcil, le forçant à relever le nez pour voir, car les yeux étaient presque occultés sous ce bord flasque et crasseux. Son pourpoint, d'une étoffe et d'une couleur indescriptibles paraissait de meilleur humeur que lui, car il riait par toutes les coutures. Ce vêtement facétieux crevait de gaieté et aussi de vieillesse, ayant vécu plus d'années que Mathusalem. Une lisière de drap de Frise lui servait de ceinture, et soutenait en guise d'épée un fleuret démoucheté, dont la pointe, comme un soc de charrue, creusait le pavé derrière lui. Des grègues de satin jaune, qui jadis avaient déguisé les masques à quelque entrée de ballet, s'engloutissaient dans des bottes, l'une de pêcheur aux huîtres en cuir noir, l'autre à genouillère, en cuir blanc de Russie, celle-ci à pied plat, l'autre à pied tortu, ergotée d'un éperon, et que sa semelle feuilletée eût abandonnée depuis longtemps sans le secours d'une ficelle faisant plusieurs tours sur le pied comme les bandelettes d'un cothurne antique.

II. Décrire le caractère de Gil Blas en l'expliquant par ses aventures. (200 mots).

III. Dites ce que vous savez de la première représentation d'Hernani. (200 mots).

IV. Dans Gil Blas, Lesage décrit les mœurs de *son temps* sous des déguisements espagnols. Dans le Capitaine Fracasse, Gautier peint des scènes du *XVIIe siècle* en leur rendant la couleur locale la plus exacte. Laquelle de ces deux œuvres préférez-vous, et pour quelles raisons. Jugez la *différence* dans la manière de raconter de chaque auteur et appréciez leur style. (200 mots).

For Affiliated Colleges only.

V. Raconter la vie du baron de Sigognac. (200 mots).

VI. Raconter une course de taureaux d'après Militona. (200 mots).

TROISIÈME ANNEE.

FRANÇAIS.

VENDREDI, 12 AVRIL :—DE 2 A 5 HEURES.

N.B.—*Prière de répondre en français.*

I. Ecrire l'analyse du *Cid.* Donner une analyse critique du caractère de Chimène, et juger sa conduite envers Rodrigue ; comparer cette héroïne avec la Juliette de Shakespeare sous le rapport de la lutte de la passion avec le devoir. Les exigences de la tragédie sont-elles satisfaites dans le *Cid* ? Y a-t-il unité de lieu, de temps et d'action dans cette pièce ? Quelle est votre opinion sur le langage de Rodrigue et de Chimène, et en particulier sur les stances de Rodrigue ? Comparer Rodrigue au héros du drame romantique, avec Hernani par exemple. Juger le caractère du roi, de l'infante. Qu'est ce que vous pensez de la solution de la pièce, et surtout du malentendu qui l'amène ? Comment se fait-il que Chimène consente à épouser l'homme qui a tué son père, dès le lendemain du meurtre ? Discuter l'idée fondamentale du *Cid* au point de vue du devoir.

II. Faire l'analyse d'*Athalie.* Discuter les caractères d'Athalie et de Mathan.

III. Donner l'analyse du *Misanthrope.* Etudier le caractère d'Alceste, sa haine de l'humanité. Pourquoi cette haine ? A qui en veut-il ? Une pareille haine peut-elle être justifiée ? De qui rit-on dans la pièce ? Est-ce qu'Alceste présente des ridicules ? Rousseau a-t-il raison, lorsqu'il maintient que la pièce est immorale ? Comparez Alceste avec Philinte.

(Répondre à *une* des deux questions suivantes.)

IV. 1. Faire l'analyse de l'*Avare*, et décrire le caractère d'Harpagon.

2. Faire l'analyse du *Bourgeois Gentilhomme.*

V. (Répondre à *une* des deux questions suivantes.)

1. Faire l'analyse des *Femmes savantes.* Comparer cette pièce avec les *Précieuses ridicules.*

2. Décrire le caractère de Tartuffe. Est-ce que Molière attaque la religion dans *Tartuffe ?*

VI. l'Intrigue dans le théâtre de Molière, et à ce propos, ses *dénoûments.* et la part de la farce dans ses pièces. Rapport des situations avec les caractères dans *Molière.* Enumérer les *types* qui se rencontrent dans e théâtre de Molière.

TROISIÈME ET QUATRIÈME ANNÉE.

FRANÇAIS.

MERCREDI, LE 17 AVRIL :—DE 9 HEURES À MIDI.

A.

N.B.—(*Prière de répondre en français et de se servir d'un cahier séparé pour chacune des sections A et B.*)

I. *Chansons de geste :*

(1) La versification.

(2) Le jongleur.

(3) Classifier les chansons de l'épopée nationale.

(4) Faire une analyse du *Roland.*

II. La contribution du Midi à l'épopée courtoise. La voie de transmission.

III. (1) Enumérer les œuvres de Chrétien.

(2) Les auteurs lyriques du 15e siècle.

IV. La seconde partie du Roman de la Rose.

V. La vie et l'œuvre de Villehardouin *ou* de Joinville.

VI. Les moralités.

B.

I. Traduire en anglais :

(1) Depuis tantôt six mois que la cause est pendante,
Nous voici comme au premier jour.
Pendant cela le miel se gâte.
Il est temps désormais que le juge se hâte :
N'a-t-il point assez léché l'ours ?

(2) Le malheureux lion se déchire lui-même,
Fait résonner sa queue à l'entour de ses flancs,
Bat l'air, qui n'en peut mais ; et sa fureur extrême
Le fatigue, l'abat ; le voilà sur les dents.
L'insecte du combat se retire avec gloire.

(3) Le bon sire le souffre, et se tient toujours coi.
Jupin en a bientôt la cervelle rompue :
Donnez-nous, dit ce peuple, un roi qui se remue !
Le monarque des dieux leur envoie une grue,
Qui les croque, qui les tue,
Qui les gobe à son plaisir ;
Et grenouilles de se plaindre,
Et Jupin de leur dire :

(4) Il prophétisait vrai ; notre maître Mitis,
Pour la seconde fois les trompe et les affine,
Blanchit sa robe et s'enfarine ;
Et, de la sorte déguisé,
Se niche et se blottit dans une huche ouverte.
Ce fut à lui bien avisé :
La gent trotte-menu s'en vient chercher sa perte.
Un rat, sans plus, s'abstient d'aller flairer autour :
C'était un vieux routier, il savait plus d'un tour ;
Même il avait perdu sa queue à la bataille.
Ce bloc enfariné ne me dit rien qui vaille.

II. (1) Décrire les principaux caractères de la littérature française au XIXe siècle.

(2) "La littérature d'un peuple est l'expression de son état social :" Montrer que cette proposition s'applique bien à la littérature du Premier Empire.

III. (*a*) Origine, (*b*) caractère, (*c*) qualité, (*d*) et défauts de l'école romantique.

IV. (*a*) Noter brièvement la vie et l'œuvre de *George Sand*, de *François Ponsard* et de *Leconte de Lisle*. (*b*) A quelle école chacun de ces écrivains se rattache-t-il ? Caractériser ces écoles.

V. Traduire en français :

On the western side, a little wood alone fringed the sky with a reddish brown band. In the middle, a road—the road from Chateaudun to Orleans—of a chalky whiteness, went straight away for four leagues, unfolding a geometrical file of telegraph poles. And nothing else, except three or four wooden mills, on their timber foot, with motionless wings. Some villages made stone islets, a distant steeple emerged from a slight depression without the church being visible, in the gentle undulations of this land of wheat. But John turned around and started back from north to south, with his regular swing, his left hand holding the seed-bag, his right whipping the air with an uninterrupted stream of seed.

FRANÇAIS, HONNEURS.

Le 12 Avril.

SUR L'IDÉE DU PROGRÈS AU DIX-HUITIÈME SIÈCLE.

Voltaire.—Ses idées : sur la religion, la philosophie, le gouvernement. Ce qu'il a appris en Angleterre. Voltaire historien ; ses œuvres historiques principales.

Voltaire et l'intolérance en religion. L'influence de Voltaire.—

Qu'est-ce que le *voltairianisme?* Et existe-t-il encore? Le tempérament et le caractère de Voltaire.

Diderot.—Ses idées. Influence de Diderot sur la littérature du dix neuvième siècle.

Rousseau.—Sa vie. Sa critique de la société. Le rapport de sa vie avec cette critique. Les rapports de la vie et de l'éducation de Jean Jacques avec son œuvre. La doctrine de Rousseau. Quelles sont les idées d'*Emile*, du *Contrat Social*, de la *Nouvelle Héloise?* Comparer Rousseau à Voltaire et à Diderot au point de vue de la religion. L'influence de Rousseau. Le caractère littéraire de son œuvre. Rousseau et le romantisme.

Influence de la *Révolution* sur la littérature: sur la société polie; sur le journalisme; influence de celui-ci sur la société et sur la littérature; influence de la Révolution sur l'éloquence politique; et à ce propos, l'éloquence, en général, au dix-septième et au dix-huitième siècles. Les principaux orateurs de la Révolution. Mirabeau.

Madame de Staël.—Caractère et esprit de Mme de Staël. La politique et la religion de Mme de Staël. Les idées littéraires de Mme de Staël: la *Littérature* et l'*Allemagne*. Influence de Mme de Staël sur la littérature. Ses *romans*.

Chateaubriand.—Sa vie, son caractère, son esprit. Le *Génie du Christianisme*. L'état des esprits dans la société à l'apparition du *Génie*, et l'influence de cette œuvre sur la société et sur la littérature. Cette influence était-elle permanente? *Atala*, *René*, les *Martyrs*, l'*Itinéraire*. Chateaubriand comme *paysagiste*. Chateaubriand et le romantisme.

Les *polémistes* de l'époque romantique: Joseph de Maistre, Paul-Louis Courier, Lamennais, Proudhon.

Définition du *Romantisme*. Origines et influences déterminantes. Le Cénacle. La Préface de *Cromwell*. La poésie romantique. Réforme de la langue et du vers.

Béranger.—Caractère des *Chansons*. Classification des *Chansons*. Le rôle politique de Béranger. Béranger comme homme.

Lamartine.—Ses œuvres poétiques. Lamartine comme historien, Lamartine orateur; son rôle dans la révolution de 1848.

FRANÇAIS, HONNEURS.

Le 13 Avril.

Victor Hugo, poète ; ses principaux recueils ; son génie poétique ; Hugo, romancier ; tracer l'idée maîtresse de *Notre-Dame* et des *Misérables* ; le théâtre de Victor Hugo : *Hernani*, *Ruy Blas* ; et à ce propos, sur le théâtre romantique ; comparer ce théâtre avec le théâtre classique ; comparer *Hernani* avec le *Cid*.

Ecrire sur la poésie et les comédies de Musset ; Gautier, l'art pour l'art.

Caractères généraux du roman de George Sand ; de Balzac ; de Stendhal ; de Mérimée. Analyser la *Mare au Diable*, la *Petite Fadette*, *Eugénie Grandet*, le *Curé de Tours*, *Pierrette*, *Colomba*, *Carmen*, *Mateo Falcone*.

Quelle est la manière de traiter l'histoire de Guizot, de Tocqueville de Thierry, de Michelet, de Fustel de Coulanges ? Nommer les œuvres principales de ces écrivains ; exposer leurs idées. La théorie de la race dans Thierry. L'influence de l'idée démocratique sur l'œuvre de Michelet,

La méthode critique de Sainte-Beuve, de Taine. Expliquer et juger les trois facteurs déterminants de la littérature selon Taine. Nommer les œuvres principales de ces auteurs. Parler en détail sur Sainte-Beuve.

Qu'est-ce que c'est que le naturalisme ?

La poésie parnassienne : Théodore de Banville ; Beaudelaire ; Leconte de Lisle ; Sully Prudhomme.

La Comédie réaliste : Augier ; Dumas.

Le roman naturaliste : Flaubert ; Zola ; Daudet ; Maupassant. Du *milieu* dans Balzac et dans Zola. Analyse de *Jack*, d'un *Rêve*.

Renan : Son œuvre. Comparer Renan sous le rapport de l'influence sur la religion, avec Voltaire et Chateaubriand.

QUATRIÈME ANNÉE.

FRANÇAIS.

HONNEURS.

Lundi, 15 Avril, 1901.

1. (*a*) Définir l'oraison funèbre ; (*b*) retracer son histoire ; (*c*) montrer les différences profondes qui séparent l'oraison funèbre telle

que l'ont faite les pères de l'Eglise et Bossuet celle des anciens; donner une explication de ces différences.

2. Donner un plan détaillé de l'oraison funèbre de Bossuet sur Henriette-Marie de France et montrer comment les faits refutent le jugement de cet orateur sur le protestantisme.

3. Résumé et appréciation de la *Lettre à l'Académie française* par Fénelon.

4. (*a*) Quelle fut l'occasion des *Provinciales* ? (*b*) Quel en était l'objet ? (*c*). De quoi traite la 14*e Provinciale*, et comment Pascal y réfute-t-il les vues des Jésuites ?

5, (*a*) Court aperçu de la carrière de La Bruyère ; (*b*) son œuvre ; (*c*) sa méthode et son style.

6. La vie et l'œuvre de *Florian* ou de *Lesage*.

7. Faire connaître le cardinal de Retz comme *homme d'église*, *homme politique* et *écrivain*.

8. (*a*) Montrer par plusieurs faits et citations que Voltaire a déprécié le Canada. (*b*) Expliquer cette dépréciation et la flétrir comme elle le mérite.

FRACAIS, HONNEURS.

Venredi, 19 April, 1901:—De 9 Heures a Midi.

I. Les *Bestiaires*, ou les *Lapidaires*.

II. (1) Le drame d'Apam (XIIe siècle) *ou* le *Saint-Nicolas* de Jean Bodel.

(2) Les Puys, confrèries poétiques, etc.

(3) La mise en scéne des mysteres.

(4) Les caractéres essentiels de la *moralité*.

(5) *Les Enfants sans souci*.

III. Traduire en francais moderne certains passages choisis dans :

(1) La vie de Saint Alexis.

(2) Yvain,

(3) Le Boman de Renard.

et (à livre ouvert) dans

(4) Le Voyage de Charlemagne, etc.

(5) Philippe de Thaon.

(6) Villehardouin.

FRANÇAIS, HONNEURS.

SAMEDI, 20 AVRIL 1901:—DE 9 HEURES A MIDI.

I. (1) La faiblesse de la caractéristique *ou* le rôle du traître dans l'épopée française.

(2) Les transformations de la figure de Charlemagne dans l'épopée

ou

Le cycle de Guillaume.

(3) *Voyage de Charlemagne à Jerusalem et à Constantinople.*

(4) Apprécier l'œuvre et le style de Léon Gautier.

II. (1) Apprécier la valeur historique et documentaire de l'épopée antique.

(2) L'épisode de *Troïlus et Briseïda.*

III. (1) L'épopée courtoise à l'étranger.

(2) Faire l'analyse (*a*) du *Lancelot* de Chrétien, (*b*) d'un lai quelconque de Marie de France.

IV. L'amour dans la poésie lyrique courtoise.

V. (1) Le lai d'Aristote

ou

La théorie orientaliste de l'origine et de la transmission des contes populaires (fabliaux).

(2) Romulus, Avianus et les Ysopets

ou

L'élément didactique dans les fables.

3) La branche du jugement dans le Roman de Renard.

VI. (1) Caractériser la littérature bourgeoise au moyen âge.

(2) La femme innocente et persécutée dans les différents genres de la littérature du moyen âge.

GERMAN.

FIRST YEAR.

GERMAN (*Beginners' Class*).

TUESDAY, APRIL 16TH :—MORNING, 9 TO 12.

1. Translate :—

(*a*) Am Hofe war aber bald von nichts anderm mehr die Rede, als von den ungezählten Schätzen der jungen Königin, und viele trieben den König, sich dieselben in der Nähe zu betrachten. Ihm war es nicht um die Schätze zu thun ; er dachte nur daran, sein junges Weib wieder lächeln zu sehen, und meinte, wenn er ihr die Sachen holte, die sie besessen, so werde sie fröhlich werden.

(*b*) Das Schlimmste war der Durst. Da der Berg noch unbewaldet war, so konnte es auch keine Quellen geben, und jeder Krug Wasser, der aus dem Thal geholt wurde, kostete einem oder mehrern das Leben. In dieser groszen Not gingen die Fürsten zu Rate, ob sie nicht einen Ausfall machen wollten und kämpfend zu Grunde gehen.

(*c*) Da ging sie zum Fürsten, ihrem Gemahl, und zu ihren Kindern, nahm Abschied und sagte, sie werde bald wiederkommen. Sie wisse, wo zu suchen, um alle von der Qual zu erlösen. Sie that so heiter und so sicher, dasz alle Vertrauen und Hoffnung gewannen ; denn sie verschwieg ihnen, dasz sie nicht einmal wuszte, was sie suchen solle.

(*d*) Eines Tages konnte ich nicht umhin, ihm scherzend meine Verwunderung darüber auszusprechen, dasz er eine Sache, von der die Mehrzahl der Menschen so wenig Aufhebens zu machen pflege, mit solcher Ernsthaftigkeit behandle. Er hörte mich ruhig an, blieb ganz ernst und nickte anfänglich nur schweigend vor sich hin, wie er zu thun pflegte, wenn ein Gedanke, eine Erinnerung ihn beschäftigte.

(*e*) Die Wohnung war viel geräumiger, als ein Einzelner sie für sich braucht, und die Wiszbegier der Nachbarn, welche die Gestalt des schwarzen Hauptmanns emsig, wie ein Bienenschwarm die Blume, umkreiste, hatte denn bald herausbekommen, dasz er ein

Mann mit Frau und Kindern war und dasz er seine Familie nachkommen lassen würde, sobald er sich am Orte eingerichtet hätte.

2. Give the remaining principal parts of :—*trieben, besessen, gewannen, verschwieg, nahm.*

3. Compare *gut, bald, gern,* and distinguish between *am höchsten, aufs höchste, höchst, höchstens.* Form sentences to illustrate.

4. Give three conj. which require normal order, three which require inversion, three which require transposition.

5. Form noun derivatives (*a*) monosyllabic, (*b*) with suffixes from *binden, graben, sprechen, reiten, ziehen.*

6. Translate:—I should be able to answer, were I asked tomorrow, but I should not have been able to answer yesterday, had I been asked.

7. Translate into German :—

(*a*) At last they saw a light (das Licht) not far off (weg), and they soon came to a large house. After they had knocked (klopfen) at the door, an elderly (ältlich) woman opened it. The children told her that they had lost their way (to lose one's way, ſich verlaufen) and were very tired and hungry. But, as soon as she had heard their story (die Geſchichte), she advised them to go away as fast as they could, as her husband would soon come home, and he would surely (ſicherlich) kill (töten) them.

(*b*) An ass (Eſel) met (begegnen) a hungry (hungrig) wolf. "Have mercy (Erbarmen) on (mit) me," said the trembling (zitternd) animal; "I am a poor, sick beast; look what a great thorn (der Dorn) I have run (treten) into my foot." "Really (wirklich), you grieve (leid thun) me," answered the wolf; "I think I shall have to deliver (befreien) you from your misery (das Elend)." And with these words he tore the ass to pieces.

Translate (*at sight*) :—

Erſt gegen Mitternacht erreichten wir unſere Wohnung. Der Diener erwartete uns an der Treppe.

„Wie gut war es, daß Sie geſchickt haben!" ſagte er zum Prinzen, indem er uns leuchtete.—„Eine Nachricht, die der Baron uns gleich nachher brachte, hätte uns ſonſt wegen Ihrer in die größte Angſt geſetzt."

„Geschickt hätte ich? Wann? Ich weiß nichts davon."

„Diesen Abend nach acht Uhr. Sie ließen uns sagen, daß wir ganz außer Sorgen sein dürften, wenn Sie heute später nach Hause kämen."

Hier sah der Prinz mich an. „Haben Sie vielleicht ohne mein Wissen diese Vorsicht gebraucht?"

Ich wußte von gar nichts.

„Es muß doch wohl so sein," sagte der Diener, „denn hier ist ja Ihr Uhr, die Sie zur Sicherheit mitschickten." Der Prinz griffe nach der Uhrtasche Die Uhr war wirklich fort, und er erkannte sie für die seinige.

GERMAN—(*Beginners' Class*).

TUESDAY, APRIL 16TH, AFTERNOON:—2 TO 5.

1. Translate:—

(*a*) Erst klingt es milde, tief und voll,
Gleich dem Gesang der Nachtigall,
Dann wie des Waldstroms laut Geroll;
Zuletzt erdröhnt wie Donnerhall
Das herrliche Glück von Edenhall.

"Zum Horte nimmt ein kühn Geschlecht
Sich den zerbrechlichen Krystall;
Er dauert länger schon, als recht,
Stoszt an! mit diesem kräftigen Prall
Versuch' ich das Glück von Edenhall."

Und als das Trinkglas gellend springt,
Springt das Gewölb' mit jähem Knall,
Und aus dem Risz die Flamme dringt;
Die Gäste sind zerstoben all'
Mit dem brechenden Glücke von Edenhall.

Write the principal parts of:—*brechenden, zerstoben, stoszt, klingt.*

(*b*) Still, mein Liebchen, das ist ein finsteres Geheimnis. Nur wenige lebende Menschen wissen darum; und wenn die Vögel aur den Bäumen von Rosenau einander davon erzählen, so behandeln sie die Geschichte als eine dunkle Sage ihrer Vorfahren, sie singen dann eise und klagend, und ihre Federn sträuben sich vor Ehrfurcht.

Mit Ihnen tritt meine lange, glückliche Kinderzeit mir wieder vor die Augen; Alles, was sie von Freude und Schmerz gebracht, fühle ich so lebhaft wieder, als wäre ich noch der Knabe, der einst für Sie in den Wald ging und Vögel fing. Und doch ist die schöne Gestalt, welche ich vor mir sehe, von der Jugendfreundin so verschieden, daß ich merke, es ist nur ein holder Traum, den ich träume. Ihre Augen glänzen so freundlich wie sonst, aber ich habe kaum noch das Recht, an alte Träume zu denken.

2. Translate into German:—

(*a*) The boys have been rowing and fishing the whole day, and at half past six o'clock this evening they had caught nothing but half a dozen small fish. (*b*) Where were they? By the shore at the end of the lake. Well, they might have known there were no fish there. (*c*) If they had told me what they wanted to do, I should have advised them to go along the river which flows into the lake from the south, and they would surely have found many large ones in the deep holes opposite the forest. (*d*) When do you think they will come home? I do not know; but I know those boys; they will not think of it till they are very hungry, or till it has got so dark that one cannot see one's hand two feet from one's face. (*e*) But are you not afraid something might happen to them in the darkness? The moon will not rise till a quarter to ten. (*f*) Listen! Did you hear a knock at the door? Yes; it is they. I recognize their voices.

3. Translate (*at sight*):—

(*a*) Oskar war sehr erfreut, seinen Freund wieder zu sehen. „Nun mußt Du mir recht viel von Dir erzählen; ich weiß ja gar nicht, wo Du diese lange Zeit gewesen bist." „Es wird etwa fünf Jahre sein," sagte Rudolf, „daß ich die Schule verließ. Du bliebst noch, weil Du später auf die Universität gehen solltest. Mein Vater wünschte, ich sollte Kaufmann werden, wie er selbst. Aber das gefiel mir nicht. Er erlaubte mir zunächst, einen Onkel in Cöln auf einige Wochen zu besuchen. Als ich den Rhein hinabfuhr, wurde ich auf dem Boote mit einem jungen Mann bekannt; der erzählte mir so viel von seinen Seereisen, daß ich mich bald entschloß, Dienst auf einem Seeschiff zu suchen, um die Welt zu sehen. So bin ich in America, Australien

und China gewesen, und komme eben erst in meine Heimat zurück."

(*b*) „Ja, die Leute sagen so! Aber es kommt nicht Alles ans Licht der Sonne! Ich selbst weiß von einem Fall zu erzählen, von einem schrecklichen Mord, der vor etwa dritthalb Jahren geschehen, ohne daß seither auch nur eine Spur des Mörders entdeckt worden wäre." „Ei was!" rief Hersfeld ärgerlich aus, denn ihm war, als spielte ein spöttisches Lächeln um die Lippen des Schreibers, „es ist noch nicht aller Tage Abend! Und kann nicht eine Stunde entdecken, was jahrelang verschwiegen blieb? Erreichen auch die Menschen den Schuldigen nicht, so weiß ihn doch Gott zu finden. Aber laßt uns doch die Geschichte hören!"

FIRST YEAR.

GERMAN.

TUESDAY, APRIL 16TH:—MORNING, 9 TO 12.

I. Translate into English:—

(1) Oberst. Das stellt sich nicht so nackt dar: ich will Carriere machen, oder: ich will ein gefeierter Mann werden. Das geht feiner zu. Da kommen die guten Freunde und sagen: Es ist Pflicht gegen die gute Sache, daß du — es ist ein Verbrechen gegen dein Vaterland, wenn du nicht — dir ist es ein Opfer, aber wir fordern es; — und so wird der Eitelkeit ein hübscher Mantel umgehangen und der Wahlcandidat springt hervor, natürlich aus reinem Patriotismus. Lehrt einen alten Soldaten nicht die Welt kennen. Wir, liebe Adelheid, sitzen ruhig und lachen über diese Schwächen.

(2) Mein völliger Ernst. Warum soll ich mich Ihnen anders zeigen, als ich bin? Wir Zeitungsschreiber füttern unsern Geist mit Tagesneuigkeiten, wir müssen alle Gerichte, welche Satan für die Menschen kocht, in den aller kleinsten Bissen durchkosten, darum müssen Sie uns schon etwas zu Gute halten. Der täg iche Aerger über das Verfehlte und Schlechte, die ewigen kleinen Aufregungen über alles Mögliche, das arbeitet in dem Menschen. Im Anfange ballt man die Faust, später gewöhnt man sich darüber zu spotten. Wer immer für den Tag arbeiter, ist es bei dem nicht auch natürlich, daß er in den Tag hinein lebt?

(Die Journalisten).

(3) Nicht der eigne Nutzen
Regiert Euch, Euch regiert allein der Vorteil
Des Souverains, des Landes. Eben darum

Mißtraut Euch, edler Lord, daß nicht der Nutzen
Des Staats Euch als Gerechtigkeit erscheine.
Nicht zweifl' ich dran, es sitzen neben Euch
Noch edle Männer unter meinen Richtern.
Doch sie sind Protestanten, Eiferer
Für Englands Wohl, und sprechen über mich,
Die Königin von Schottland, die Papistin!
Es kann der Britte gegen den Schotten nicht
Gerecht sein, ist ein uralt Wort — Drum ist
Herkömmlich seit der Väter grauen Zeit,
Daß vor Gericht kein Britte gegen den Schotten,
Kein Schotte gegen jenen zeugen darf.

(4) Dein Name, Königin, unter dieser Schrift
Entscheidet alles, tötet, ist ein Strahl
Des Donners, der geflügelt trifft — Dies Blatt
Befiehlt den Kommissarien, dem Sherif,
Nach Fotheringhayschloß sich steh'nden Fußes
Zur Königin von Schottland zu verfügen,
Den Tod ihr anzukündigen, und schnell,
Sobald der Morgen tagt, ihn zu vollziehn.
Hier ist kein Aufschub! Jene hat gelebt,
Wenn ich dies Blatt aus meinen Händen gebe.

(5) Wie hinterlistig treulos
Erscheint mein Rat, mein unglückseliges
Bemühn, nach Fotheringhay sie zu führen!
Grausam verspottet sieht sie sich von mir,
An die verhaßte Feindin sich verraten!
O, nimmer, nimmer kann sie das verzeihn!
Vorherbedacht wird alles nun erscheinen,
Auch diese bittre Wendung des Gesprächs,
Der Gegnerin Triumph und Hohngelächter,
Ja, selbst die Mörderhand, die blutig, schrecklich,
Ein unerwartet ungeheures Schicksal,
Dazwischen kam, werd' ich bewaffnet haben!
Nicht Rettung seh' ich, nirgends!

(Maria Stuart.)

(6) Als nun das Normannenheer im Sturme schritt,
Der edle Taillefer vor den Herzag ritt,
„Manch Jährlein hab' ich gesungen und Feuer geschürt
Manch Jährlein gesungen und Schwert und Lanze geführt.

„Und hab' ich euch gedient und gesungen zu Dank,
Zuerst als ein Knecht und dann als ein Ritter frank,
So lasst mich das entgelten am heutigen Tag,
Vergönnet mir auf die Feinde den ersten Schlag."

Uhland.

7. (*a*) Ich setzte mich auf einen Stuhl und hob das Kind auf meinen Schosz ; ich nahm seine beiden kleinen, eiskalten Hände in meine Hand un lehnte sein von Thränen überflutetes Gesicht an meine Brust; und so sasz ich mit ihm in dem dämmernden Raume lange, lange Zeit, und die Stille um uns her ward nur von dem Schlucken und Schluchzen des Knaben unterbrochen, welches allmählich leiser zu werden und zu verhallen begann. Ich sprach kein Wort, ich drückte die gebrechliche kleine Gestalt an mich, und so leicht ihr Gewicht auf meinen Knien ruhte, so hatte ich doch ein Gefühl, als hielte ich die ganze unermeszliche Last des menschlichen Jammers und Leides, verkörpert in diesem Kinde, auf meinem Schosze.

(Der Letzte).

II. In Extract I (5) give the principal parts of all strong verbs; in I (6) comment on the position of the verbs in lines 1, 2, 5, 7; state the general principles suggested by the compound substantives and compound verbs in I (2)

FIRST YEAR GERMAN.

TUESDAY, APRIL 16TH—AFTERNOON, 2 TO 5.

I. Translate into English *(at sight)* : —

Karl. Gnug
Des Blutes iſt gefloſſen und vergebens!
Des Himmels ſchwere Hand iſt gegen mich,
Geſchlagen wird mein Heer in allen Schlachten,
Mein Parlament verwirft mich, meine Hauptſtadt,
Mein Volk nimmt meinen Gegner jauchzend auf,
Die mir die Nächſten ſind am Blut, verlaſſen,
Verraten mich — die eigne Mutter nährt
Die fremde Feindesbrut an ihren Brüſten,
— Wir wollen jenſeits der Loire uns ziehn
Und der gewalt'gen Hand des Himmels weichen,
Der mit dem Engelländer iſt.

Sorel. Das wolle Gott nicht, daß wir, an uns ſelbſt
Verzweifelnd, dieſem Reich den Rücken wenden!
Dies Wort kam nicht aus deiner tapfern Bruſt.
Der Mutter unnatürlich rohe That
Hat meines Königs Heldenherz gebrochen!
Du wirſt dich wieder finden, männlich faſſen,
Mit edelm Mut dem Schickſal widerſtehen,
Das grimmig dir entgegen kämpft.

II. Translate into German *(at sight)* :—

(1) Sir, I must beg you to consider my expressions less amusing. I do not know Mr. Piepenbrink, but I have the pleasure of knowing his wine, and so I repeat the assertion that Mr. P. has better wine in his cellar than this. Why do you consider that ridiculous. You don't know Mr. P.'s wine and have no right to express an opinion.

(2 When I was calling on a friend of mine yesterday, her daughter came into the room looking so pleased and happy that I asked her what had happened. She said: "Last Christ

mas Grandma gave me a beautiful brooch. I was, of course, delighted and took good care of it. But yesterday morning, when I went to church with mother, I wore it, and when we came home it was gone. I was not sure where I had lost it, whether on the street or in the church. I had also been walking about in the garden before church began. (Horning.)

III. Translate into German :—

(1) Well, I hope it will please you here, but the town is really not interesting.

(2) There was a crowd of people singing and playing in front of Dr. Smith's house. As you know, this famous traveller has been in Asia and has seen a great many strange people and strange customs. He has just got back.

(3) It is reported that a burglar once came to the house of the famous savant Molières, who was in the habit of retiring early. When the burglar entered the bedroom, he found the learned man studying in bed, as he very often did when tired.

(4) My uncle received me in a most cordial fashion. He is one of the richest men here and has the finest house in town, but I am democratic, you know, and like best to live very quietly and simply, the simpler the better.

(5) My friend had been elected president of the society, and every day at ten in the forenoon and four in the afternoon he had been obliged to leave his study and hasten to town.

(6) This young hero went into the war as a captain and returned as a celebrated general, having behaved himself with great courage in battle, and much dignity in the ordinary events of the camp life. Some say it was the thought of wife and child that drove him to attempt such daring deeds.

IV. Write a German letter to a friend from whom a visit is expected, telling what is going to take place, inquiring about the health of friends, etc., etc. (about 75 words).

SECOND YEAR GERMAN

SATURDAY, APRIL 20TH:—MORNING, 9 TO 12.

I. Translate (at sight:)—

(1) Allenhalen gegenwärtig, wo der Kampf am blutigsten war, schen dr Köig sein Leben für nichts zu achten. Nie zeigten sich sein Geist und seine großen Fähigkeiten in einem so glänzenden, Lichte, wie in dieser Nacht. die, anstatt seinen Ruhm zu schwächen, ihn vielmehr außerordentlich erhöhtet Nicht der König, der mitten im Schlachtgetümmel alle Regierungsgeschäfte besorgt und seine Staaten, so wie im Frieden, durch eigene Verordnungen beherrscht; der in gefahrvollen Stunden die Flöte spielt und gleich darauf de tiefdurchdachtesten Befehle erteilt; der am Tage einer entscheidenden Schlacht französiche Verse macht, Gesetze entwirft und Rechnungen durchsieht; nich- dieser außerordentliche Mann ist dem Philosophen, dem Geschichtsforcher, dem Denker so verehrungswürdig, als der bei Hochkirch überfallene, geschla- gene aber doch nicht besiegte König, der seine schlafenden Krieger zusammen, rafft, sie einem tapferen und weit stärkeren Feinde entgegenstellt, der in diesem erchrecklichen Augenblick seinen Busenfreund fallen sieht, alle seine- vornehmsten Feldherren verliert und nun, sich ganz allein uberlassen, durch die Kraft seines Gieistes die zweckmäßigsten Maßregeln ergreift, das Chaos seines Heeres mitten unter Blut und Tod zur Harmonie umschafft, fünf Stunden lang kämpft und sich mit großer Ordnung zurückzieht. Ein solcher Fürst erzwingt die Bewunderung aller Nationen und allr Zeiten.

(2) Eine Auswanderung deutscher Herren und Arbeiter hat in etwa hun- dert Jahren ein weites Ländergebiet mit vielen Hunderten deutcher Städte und Tausenden deutcher Dörfer besetzt und zum großen Teil fest an Deut- schland gekettet. Fast der ganze östliche Teil des preußischen Staates liegt auf dem Boden der Koloniation des dreizehuten Jahrhunderts.

Wir vermögen nicht mehr nachzuweien, wie damals in der Seele des deutschen Volkes die Auswanderungslust zu einer mächtigen Leidenschft erwaschen ist. Allerdings hatten die Römerzüge der Hohenstaufen und noch mehr die Kreuzfahrten die Masse in ihren Tiefen aufgewühlt und unruhig, wanderlustig, nach Fremdem negierig gemacht; allerdings war damals das Leben im innern Deutschland für den friedlichen Arbeiter gefahrvoll, oft unerträglich geworden. Und noch vermögen wir zuweilen die Gestalt das frommen Mönches zu erkennen, einen unternehmenden Edelmann ode eine junge Fürstenbrut, welche an die Bauernhütten ihrer Heimat pochten und die jungen Feldarbeiter mit gutem Verfprchen unter das polnische Volk riefen. Aber doch ist uns vieles von der großen Auswanderung unverständ- lich geworden.

II. Translate into German :—

1. Many years ago a poor merchant was going through the forest to Reichenau. He had become tired and sat down to eat a piece of bread, for he had nothing else. Whilst he was eating he saw at his feet a mouse, which seemed to expect something. He good-naturedly threw it some crumbs from his bread, for the poor little animal seemed to have eaten nothing for a long time. It remained by him and he gave it a small share so long as he had anything. Then the merchant got up to take a drink of water at a neighboring spring. When he came back he found to his surprise a gold piece on the ground, and the mouse was just coming with a second one ; this it laid down, and ran away to fetch a third. The merchant saw that it had run into a hole and fetched the gold out of it. So he dug a hole in the ground, and soon found a large treasure of gold pieces. All this happened on account of his generosity. He built a church with it and divided the rest among the poor.

2. Of all our domestic animals the dog is the most faithful. But of horses too the ancients relate to us many striking instances of fidelity. Nicomedes, king of Bithynia, had a favourite horse, which was so devoted to its master that, after his death by the hand of a murderer, it abstained from all food, and died of hunger on his grave.

Antiochus, king of Syria, having fallen in battle, the foe who had killed him mounted the dead king's horse. The faithful animal, however, rushed towards a precipice, and both man and horse perished.

III. (1) Indicate the successive periods into which German Literature falls.

(2) Write what you know about the following works :—*Nibelungenlied, Parzival, Buch von der deutschen Poeterey, Messias, Stimmen der Völker in Liedern.*

(3) Justify Schiller's main deviations from History in the *Jungfrau*

or

Discuss its Romantic character.

4. Give a very brief outline of the Life of Lessing and speak of his services to German Literature. Mention his chief works in order of their appearance,

or

Discuss the exposition and the national aspects of *Minna von Barnhelm*.

SECOND YEAR GERMAN.

APRIL 20TH;—AFTERNOON, 2 TO 5.

1. Translate into English;—

(1) Wohl! Nun kann der Gusz beginnen,
Schön gezacket ist der Bruch.
Doch, bevor wir's lassen rinnen,
Betet einen frommen Spruch!
Stoszt den Zapfen aus!
Gott bewahr' das Haus!
Rauchend in des Henkels Bogen
Schieszt's mit feuerbraunen Wogen.

(2) Der Himmel schlage durch ein Wunder sich
Ins Mittel und erleuchte dies Geheimnis,
Das unser sterblich Auge nicht durchdringt—
Doch, wie sich's auch entwirren mag und lösen,
Eins von den Beiden haben wir verschuldet:
Wir haben uns mit höll'schen Zauberwaffen
Verteidigt, oder eine Heilige verbannt!
Und Beides ruft des Himmels Zorn und Strafen
Herab auf dieses unglücksel'ge Land!

(3) Ihr Könige und Herrscher!
Fürchtet die Zwietracht! Wecket nicht den Streit
Aus seiner Höhle, wo er schläft, denn, einmal
Erwacht, bezähmt er spät sich wieder! Enkel
Erzeugt er sich, ein eisernes Geschlecht,
Fortzündet an dem Brande sich der Brand.
—Verlangt nicht mehr zu wissen! Freuet euch
Der Gegenwart, laszt mich die Zukunft still
Bedecken!

(4) Sie nennen mich Tellheim; der Name trifft ein.—Aber Sie meinen, ich sei der Tellheim, den Sie in Ihrem Vaterlande gekannt haben, der blühende Mann, voller Ansprüche, voller Ruhmbegierde, der seines ganzen Körpers, seiner ganzen Seele mächtig war, vor dem die Schranken der Ehre und des Glücks eröffnet standen, der Ihres Herzens und Ihrer Hand, wenn er schon ihrer noch nicht würdig war, täglich würdiger zu werden hoffen durfte.—Dieser Tellheim bin ich ebensowenig,—als ich mein Vater

bin. Beide sind gewesen. — Ich bin Tellheim, der verabschiedete, der an seiner Ehre gekränkte, der Krüppel, der Bettler. — Jenem, mein Fräulein, versprachen Sie sich: wollen Sie diesem Wort halten?

(5) Nicht so, mein Herr! — Wie auf einmal so verändert? — Ist dieser schmeichelnde, stürmische Liebhaber der kalte Tellheim? — Konnte nur sein wiederkehrendes Glück ihn in dieses Feuer setzen? — Er erlaube mir, daß ich bei seiner fliegenden Hitze für uns beide Überlegung behalte. — Als er selbst überlegen konnte, hörte ich ihn sagen: es sei eine nichtswürdige Liebe, die kein Bedenken trage, ihren Gegenstand der Verachtung auszusetzen. — Recht; aber ich bestrebe mich einer eben so reinen und edlen Liebe als er. — Jetzt, da ihn die Ehre ruft, da sich ein großer Monarch um ihn bewirbt, sollte ich zugeben, daß er sich verliebten Träumereien mit mir überließe? daß der ruhmvolle Krieger in einen tändelnden Schäfer ausarte? — Nein, Herr Major, folgen Sie dem Wink Ihres bessern Schicksals.

(6) Grimmig erhob sich darauf in unsern Männern die Wut nun,
Das Verlorne zu rächen und zu verteid'gen die Reste.
Alles ergriff die Waffen, gelockt von der Eile des Flüchtlings,
Und vom blassen Gesicht und scheu unsicheren Blicke.
Rastlos nun erklang das Getön der stürmenden Glocke,
Und die künft'ge Gefahr hielt nicht die grimmige Wut auf.
Schnell verwandelte sich des Feldbaus friedliche Rüstung
Nun in Wehre; da troff von Blute Gabel und Sense.
Ohne Begnadigung fiel der Feind, und ohne Verschonung;
Überall raste die Wut und die feige, tückische Schwäche.
Möcht' ich den Menschen doch nie in dieser schnöden Verirrung
Wiedersehn! Das wütende Tier ist ein besserer Anblick.
Sprech' er doch nie von Freiheit, als könn'er sich selber regieren
Losgebunden erscheint, sobald die Schranken hinweg sind,
Alles Böse, das tief das Gesetz in die Winkel zurücktrieb.

(7) Mein Bruder, aufs äuszerste empört über diesen Schritt, bot Alles auf, die Schuldige zur Strafe zu ziehen; doch vergebens; seine Versuche, die in Neapel und Florenz Aufsehen erregt hatten, dienten nur dazu, sein und unser Aller Unglück zu vollenden. Der florentinische Edelmann reiste in sein Vaterland zurück, zwar mit dem Vorgeben, meinem Bruder Recht zu verschaffen, der That nach aber, um uns zu verderben. Er schlug in Florenz alle jene Untersuchungen, welche mein Bruder angeknüpft hatte, nieder und wuszte seinen Einflusz, den er auf alle Art sich verschafft hatte, so gut zu benützen, dasz mein Vater und mein Bruder ihrer Regierung verdächtig

gemacht, durch die schändlichsten Mittel gefangen, nach Frankreich geführt, und dort vom Beil des Henkers getötet wurden.

II. Translate, rendering words in italics by adverbs :—*You know* he told you so. *Pray* come and see us. *Be sure* you think of it. He will not come *until* to-morrow. I could not *exactly* say that. *Even* if it were true, you should not say so. I have been waiting for it *these* three years.

III. How is the infinitive in *ing* after prepositions expressed in German ? Illustrate with *an, auf, ohne, um.*

IV. How may a command be expressed without using the Imperative mood ? Give examples.

V. Translate into German :—" He said that the more he thought about it, the less he could understand how it had happened, for he was sure he had shut the door before going out. How the horse had succeeded in getting out was a wonder to him." Explain the principles governing " reported speech " in German.

THIRD YEAR GERMAN.

MONDAY, APRIL 15TH :—AFTERNOON, 2 TO 5.

1. Translate :—

(I) Auf dem Dach des Gartenhäusleins,
Drin einst Fludribus gemalet,
Sasz der Kater Hiddigeigei.
Mit Befremden sah der Biedre
In der Tiefe Spiesze funkeln,
Sah, wie einer, mit den Zähnen
Seinen blanken Säbel haltend,
An der Mauer sich emporschwang.
Brummend sprach drauf Hiddigeigei :
"'s wär' zwar billig, dasz ein weiser
Kater zu der Menschen dummen
Streichen sich neutral verhielte,
Doch ich hasse diese Bauern,
Hasse den Geruch des Kuhstalls,
Dessen Sieg der europä'schen
Bildung feine Atmosphäre
Gänzlich ruinieren würde.
Seht euch vor, ihr Herren ! seit am

Kapitolium der Gänse
Warnruf in den Galliersturm klang,
Nimmt das Tiervolk seinen ernsten
Anteil an der Weltgeschichte."
Zornig richtet' er empor sich,
Zornig krümmt' er seinen Buckel
Und erhob ein grauenhaftes
Ohrzerreiszendes Miauen.

(2) Es wär' nicht Geckerei,
Bei Hunderttausenden die Menschen drücken,
Ausmergeln, plündern, martern, würgen und
Ein Menschenfreund an einzeln scheinen wollen?
Es wär' nicht Geckerei, des Höchsten Milde,
Die sonder Auswahl über Bös' und Gute
Und Flur und Wüstenei, in Sonnenschein
Und Regen sich verbreitet,—nachzuäffen,
Und nicht des Höchsten immer volle Hand
Zu haben?

II. Translate at sight:—

(1) Nachdem viele Angelegenheiten des Tags durchgesprochen waren, zog sich die Unterhaltung ins Allgemeine, und man behandelte die Frage, die, so lange es Schriftsteller giebt, sich immer wiederholen wird: ob nämlich die Litteratur im Auf- oder Absteigen, im Vor- oder Rückschritt begriffen sei. Diese Frage, worüber sich besonders Alte und Junge, Angehende und Abtretende selten vergleichen, sprach man mit Heiterkeit durch, ohne daß man gerade die Absicht gehabt hätte, sich darüber entschieden zu verständigen. Zuletzt nahm ich das Wort und sagte: „Die Literaturen, scheint es mir, haben Jahrzeite, die mit einander abwechselnd, wie in der Natur, gewisse Phänomene hervorbringen, und sich der Reihe nach wiederholen. Ich glaube daher nicht, daß man irgend eine Epoche einer Literatur im Ganzen loben oder tadeln könne; besonders sehe ich nicht gerne, wenn man gewisse Talente, die von der Zeit hervorgerufen werden, so hoch erhebt und rühmt, andere dagegen schilt und niederdrückt.

(2) Jetzt also war die Decke von dem Plan weggezogen, worüber er schon Jahre lang in geheimnißvoller Stille gebrütet hatte. Auch lehrten alle Umstände, daß zur Vollstreckung desselben keine zeit zu verlieren sei. Nur das blinde Vertrauen zu dem Kriegsglück und dem überlegenen Genie des Herzogs von Friedland hatte dem Kaiser die Festigkeit eingeflößt, allen Vorstellungen Bayerns und Spaniens entgegen und auf Kosten seines eigenen

Ansehens diesem gebieterischen Mann ein so uneingeschränktes Commando zu übergeben.

III. Translate into German:—

(1) What most interested our traveller in the ancient city of Frankfort was neither the opera nor the Ariadne of Dannecker, but the house in which Goethe was born and the scenes he frequented in his childhood and remembered in his old age. Such, for example, are the walks around the city, outside the moat; the bridge over the Main, with the golden cock on the cross, which the poet beheld and marvelled at when a boy; and the garden in which his grandfather walked up and down among the fruit-trees and rose-bushes, in long morning-gown, black velvet cap, and the antique leather gloves which he annually received as Mayor.

(2) It was pitch dark when I arrived in Osterode. I had no appetite and went to bed at once. In my dream I came back to Göttingen, to the Göttingen Library. I was standing in a corner of the law-room, and reading some old dissertations, when to my amazement I noticed it was night, the neighboring church bell struck twelve, the door opened slowly and in walked a proud, gigantic woman, most respectfully escorted by the members of the law faculty.

IV. Translate into English and paraphrase freely and briefly in German prose the following lines from Schiller's *Spaziergang*.

(*a*) Künstliche Himmel ruhn auf schlanken ionischen Säulen.

(*b*) Aber im stillen Gemach entwirft bedeutende Zirkel
Sinnend der Weise, beschleicht forschend den schaffenden Geist.

(*c*) Körper und Stimme leiht die Schrift dem stummen Gedanken,
Durch der Jahrhunderte Strom trägt ihn das redende Blatt.

THIRD AND FOURTH YEAR GERMAN.

WEDNESDAY, APRIL 17th, 1901:—AFTERNOON, 2 TO 5.

I. Translate, locate and comment on the following:—

(1) Unleidlich ward mir's schon auf meinem gepolsterten Stuhle, wenn in stattlicher Versammlung die Fürsten, was leicht

zu entscheiden war, mit wiederkehrenden Gespächäen überlegten, und zwischen düstern Wänden eines Saals die Balken der Decke mich erdrückten. Da elit' ich fort, sobald es möglich war, und rasch auf's Pferd mit tiefem Atemzuge. Und frisch hinaus, da wo wir hingehören! in's Feld, wo aus der Erde dampfend jede nächste Wohlthat der Natur, und durch die Himmel wehend alle Segen der Gestirne uns umwittern; wo wir, dem erdgebornen Riesen gleich, von der Berührung unsrer Mutter kräftiger uns in die Höhe reißen; wo wir die Menschheit ganz, und menschliche Begier in allen Adern fühlen; wo das Verlangen vorzudringen, zu besiegen, zu erhaschen, seine Faust zu brauchen, zu besitzen, zu erobern, durch die Seele des jungen Jägers glüht; wo der Soldat sein angebornes Recht auf alle Welt mit raschem Schritt sich anmaßt, und in fürchterlicher Freiheit wie ein Hagelwetter durch Wiese, Feld und Wald verderbend streicht, und keine Grenzen kennt, die Menschenhand gezogenn.

(2) Und doch berührt er immer diese Saite: Er weisz von alters her, wie verhaszt mir diese Ermahnungen sind; sie machen nur irre, sie helfen nichts. Und wenn ich ein Nachtwandler wäre und auf dem gefährlichen Gipfel eines Hauses spazierte, ist es freundschaftlich, mich beim Namen zu rufen und mich zu warnen, zu wecken und zu töten? Lasst jeden seines Pfades gehen; er mag sich währen.

(3) **Eräsin.** Vertrauen? Neugng?—Man bedurfte deiner!
Die ungestüme Presserin, die Not,
Der nit mit hohlen Namen, Figuranten
Gedient ist, die di That will, nicht das Zeichen
Du Größten immer aufsucht und den Besten
Ihn an das Ruder stellt, und müßte sie ihn
Aufgreifen aus dem Pöbel selbst — die setzte dich
In dieses Amt und schrieb dir die Bestallung
Denn lange, bis es nicht mehr kann, behilft
Sich dies Geschlecht mit feilen Sklavenseelen
Und mit den Drahtmaschinen seiner Kunst —
Doch wenn das Äußerste ihm handelt

Der hohle Schein es nicht mehr thut, da fällt
Es in die starken Hände der Natur,
Des Reisengeistes, der nur sich gehorcht,
Nichts von Verträgen weiß und nur auf ihre
Bedingung, nicht auf seine, mit ihm handelt,

(4) **Wallenstein** Soll diese Stadt zum Schlachtgefilde werden,
Und brüderliche Zwietracht, feueraugig,
Durch ihre Straßen losgelassen toben?
Dem tauben Grimm, der keinen Führer hört,
Soll die Entscheidung übergeben sein?
Hier ist nicht Raum zum Schlagen, nur zum Würgen;
Die losgebundnen Furien der Wut
Ruft keines Herrschers Stimme mehr zurück.
Wohl, es mag sein! Ich hab' es lang bedacht,
So mag sich's rasch und blutig denn entladen.
Wie ist's? Willst du den Gang mit mir versuchen?
Freiheit zu gehen hast du. Stelle dich
Mir gegenüber. Führe sie zum Kampf.
Den Krieg verstehst du, hast bei mir etwas
Gelernt, ich darf des Gegners mich nicht schämen,
Und keinen schönern Tag erlebst du, mir
Die Schule zu bezahlen.

II. Translate into German (*at sight*) :—

For the second time he took the field to assert (geltend machen) his claim to Silesia. Again he was victorious ; he possessed now the calm self-confidence of the experienced general. "What flatters me most in this victory," he wrote to Frau von Camas, "is the fact that by a prompt decision and a bold manœuvre I succeeded in saving the lives of so many brave men. I should not want to have the least of my soldiers wounded for the sake of mere glory." But in the midst of this struggle death took away two of his dearest friends.

III. (1) Discuss Lessing's remark: "The dramatic poet is no historian," in relation to Goethe's 'Egmont.'

(2) Discuss Schiller's blending of the antique and modern in *Wallenstein*.

IV. (1) Mention the chief court-epic poets of the 12th century, and give some account of their works.

(2) Give a short account of Martin Luther's life, and of his services to German Literature.

(3) Write brief notes on :—Ulfilas, Nibelungenlied, Die Meistersänger, Sprachgesellschaften, Martin Opitz.

V. (1) Form short sentences to show the preposition and case required by the following :—(*a*) flehen, (*b*) sich ärgern, (*c*) zweifeln, (*d*) sich sehnen, (*e*) argwöhnisch sein, (*f*) Gefallen finden, (*g*) Mangel leiden, (*h*) triumphieren, (*i*) sich verlassen, (*j*) eifersüchtig sein.

(2) Explain die neuen Bischofsmützen, die neuen Prediger, die neuen Psalmen, and their connection with the action of the drama.

B. A. AND THIRD YEAR HONOURS.

HISTORY OF THE GERMAN LANGUAGE.

THURSDAY, APRIL 4TH—MORNING, 9 TO 12.

1. Die Sdrachperioden des Deutschen und deren Kennzeichen.
2. Der Einfluss Frankreichs auf Sprache und Leben in Deutschland im 13 ten Jahrhundert.

3. Das Terner'sche Lautgesetz, mit Beispielin.

4. Aus welchen Gründen wird angenommen, es habe eine mhd. Schriftsprache gegeben ?

5. Über die Ausbildung der nhd. Dchriftsprache und Luthers Einflusz auf dieselbe.

6. Bersprechen Sie die sprachgeschichtliche Bedeutung folgender Wörter :—*Pfalz* und *Palast*, *Parte* und Partei, *Waffe* und *Wappen* Abcneteuer, *Sklave*, *stolzieren*, *Grenze*.

7. Wie sind folgende Formen zu erklären;—*fliegt, flevgt*; *Fahrt, Fährte, fertig, erhaben, erhoben; stände, stünde; bescheiden, bescheiden; alter, eltern.*

B.A. AND THIRD YEAR HONOURS.

GERMAN TEXTS.

SATURDAY, APRIL 6TH.:—AFTERNOON, 2 TO 5.

I. *Torquato Tasso.* Erläutern Sie den Gegensatz zwischen den Ideen der ersten und der letzten Akte;

oder

die Beziehungen dieses Dramas zu Goethe's innerem Leben.

II. *Iphigenie*—(*a*) Goethe's italienische Reise und die Umwandlung der *Iphigenie* in Italien.

oder

Iphigeniens Charakter.

(*b*) Die Furien, die Orest verfolgen,

III. *Leiden des Jungen Werther*— Beziehungen dieses Romans zu Goethe's eigenen Erfahrungen.

oder.

Die Charakterschwäche der Hauptfigur.

IV. (*a*) Heyse—Das Mädchen von Treppi.

(*b*) Heine's Brockenbesuch.

(*c*) Entstehung und Bedeutung der *Versunkenen Glocke.*

B.A. AND THIRD YEAR HONOURS.

MIDDLE HIGH GERMAN.

MONDAY, APRIL 8TH:—AFTEROON, 2 TO 5.

1. Ubersetzen Sie ins Neuhochdeutsche:—

(*a*) Dô sprach von Tronge Hagene: ‚ich sihe dort her gân
den herren Dietrîche: der wil uns bestân
nâch sînem starken leide, daz im hie ist geschehen
man sol daz hiute kiesen, wem man des besten müge jehen.

Jane dunket sich von Berne der herre Dietrîch
nie so stark des libes und so gremlîch,

und wil er3 an uns rechen, da3 im ist getân,'
alsô redete Hagene, ‚ich getar in harte wol bestân.'

In lejtlîchen sorgen sprach her Dietrîch :
‚wie habt ir sô geworben, Gunther, künic rîch,
wider mich ellenden ? wa3 het ich iu getân ?
alles mînes trôstes des bin ich eine bestân.

Iuch endûhte nicht der volle an der gn
dô ir uns Rüedegêre den helt ersluoget tôt :
nun hapt ir mir erbunnen aller mîner man.
jane het ich iu helden solher leide niht getân.

(*b*) ‚Sît ir e3 Kûdrûn, diu liebe vrouwe mîn,
sô sol ich iu gerne immer diende sîn :
sô bin ich e3 Herwîc und kôs iuch mir ze trôste
und lâ3e iuch da3 wol schouwen, deich iuch von alle sorgen gerne lôste.'

Si sprac ; ‚welt ir mir dienen, ritter û3 erkorn,
sô sult ir uns vervâhen da3 vür deheinen zorn :
mich bitent vli3iclîche hie die schœnen meide,
da3 man Hartmuoten von Waten dem alten û3 dem strît scheide'

Dô wart ûf gehouwen vil manege3 rîche3 gadem.
dô hôrte man dar inne vil ungevüegen kradem.
joch wâren die geste niht in einem muote :
genuoge sluogen wunden, die andern wurben vaste nach dem guote ....

Si heten nû gemuozet des strîtes über al.
dô kam der künic Hérwîc ze Ludewîges sal
mit sînen walgenô3en nâch bluote var gegangen.
als in ersach vrou Kûdrûn, dô wart er von ir minneclîche enphangen.

(*c*) In kleiniu goltva3 man nam in dem gedanke nâher gêt
als ieslîcher spîse zam.... ein knappe, der truoc ein swert :
alle3 von des grâles kraft. des palc was tûsent marke wert ..
diu werde geselleschaft der wirt e3 sime gaste gap ;
hete wirtschaft vome grâl. der sprach : ‚herre, ich prâht3 in nôt
wol gemarcte Parzivâl in maneger stat, ê da3 mich got
die rîcheit und da3 wunder ame lîbe hât geletzet.
grô3 ; nû sît damit ergetzet,

durch zuht in vrâgens doch verdrôȝ.
er dâhte : ‚mir riet Gurnemanz
mit grôȝen triuwen âne schranz,
ich solte vil gevrâgen niht.
waȝ op mîn wesen hie geschiht
die mâȝe als dort pî im ?
âne vrâge ich vernim,
wieȝ dirre massenîe stêt.‘

ob man iuwer hie niht wol enpflege.
ir mugetȝ wol füeren alle wege :
swenne ir geprüevet sînen art,
ir sît gein strîte dermîte bewart.‘
Owê daȝ er niht vrâgte dô !
des pin ich für in noch unfrô !
wan dô erȝ enpfienc in sîne hant,
dô was er vrâgens mit ermant.
ouch riuwet mich sîn süeȝer wirt,
den ungenande niht verbirt,
des im vom vrâgen nû wære rât.

2. Schreiben Sie die Grundformen folgender Verba : *gân, jehen stêt, müge, scheide, gehouwen, bitent, getar.*

3. Besprechen Sie das mhd. Präfix *ge—*(cf. *getar, geprüevet*), und die nhd. Formen, *wir haben kommen können,— singen hören.*

4. Vergleichen Sie die Formen des Futurums und des Passivs im Mhd. und im Nhd.

5. Besprechen Sie die Redensarten :—*sît ir eȝ Kûdrûn,* und *ich sol dienende sîn.* Vergleichen Sie dieselben mit dem Nhd.

6. Besprechen Sie eingehend den Strophenbau der beiden groszen mhd. Epen.

7. Wie verhält sich der mhd. Vokalismus zum nhd ? Erläutern Sie Ihre Antwort durch ein Schema der Vokale und Diphthonge.

8. Übersetzen Sie :—

(*a*) Marke nam dô Tristanden sînen neven ze handen,
swert unde sporn strict er im an...
Hie mite bôt er im den schilt dar ;
er kuste in und sprach : ‚neve, nu var
und gebe dir got dur sîne kraft
heil ze dîner ritterschaft !
wis iemer hövesch, wis iemer frô !‘

Tristan verrihte aber dô
sîne gesellen an der stete,
rehte als in sîn œheim tete,
(an swerte, an sporn, an schilte.)
diemüete, triuwe, milte,
die leite er iegelîches kür
mit bescheidenlîcher lêre vür.
und enwart ouch dâ niht mê gebiten :
gebuhurdieret unde geriten.

wart dâ, zewâre deist mîn wân.
wie si aber von ringe liezen gân,
wie sî mit scheften stæchen,
wie vil si der zerbræchen,
daz sulen die garzûne sagen
die hulfen ez zesamene tragen

Gottfried v. Strassburg.

(*b*) Wîp muoz ie mêre sîn der wîbe hôhste name
und tiuret baz denn vrowe, als ich z erkenne.
Swâ nû deheiniu sî diu sich ir wîpheit schame,
diu merke disen sanc unde kiese denne.
Under frowen sint unwîp,
under wîben sint sie tiure.
wîbes name und wîbes lîp
die sint beide vil gehiure,
swiez umb alle frowen var,
wîp sint alle frowen gar.
zwivellop daz hœnet,
als under wîlen frouwe:
wîp deist ein name ders alle krœnet.

Walther v. d. Vogelweide.

B.A. AND THIRD YEAR HONOURS.

KLUGE'S LITTERATURGESCHICHTE.

WEDNESDAY, APRIL 10TH:—MORNING, 9 TO 12.

1. Metrische Reform des neunten Jahrhunderts.

2. *Das Nibelungenlied*—Hagen's Charakter; Handschriftenverhältnis (nach Bartsch) mit Erklärung der gewöhnlichen Bezeichnungen (*A*, *B*, *a*, *b*, etc.); Die Meinung Friedrichs des Groszen.

3. Entlehnungen im höfischen Epos aus französischen Quellen.

4. Ulrich von Hutten
oder
Johann Fischart.

5. Volkslieder, *oder* Volksbücher, *oder* Amadisromane.

6. Die Romantiker als "Nachzügler der Stürmer und Dränger."
oder
Die Gebrüder Schlegel.

7. Heine's Erfahrungen in Berlin wahrend seiner Studentenzeit
oder
sein Verhältnis zum Onkel Solomon.

8. Die Namen der Hauptwerke Nietzsche's.

HEBREW.

SECOND YEAR.

HEBREW.

MONDAY, APRIL 1ST:—MORNING, 9 TO 12.

1. Translate literally Genesis VIII, 6 to 12.

וַיְהִי מִקֵּץ אַרְבָּעִים יוֹם *וַיִּפְתַּח נֹחַ אֶת־חַלּוֹן הַתֵּבָה
אֲשֶׁר עָשָׂה: *וַיְשַׁלַּח אֶת־הָעֹרֵב *וַיֵּצֵא יָצוֹא וָשׁוֹב
עַד־יְבֹשֶׁת הַמַּיִם מֵעַל הָאָרֶץ: וַיְשַׁלַּח אֶת־הַיּוֹנָה
*מֵאִתּוֹ *לִרְאוֹת *הֲקַלּוּ הַמַּיִם מֵעַל פְּנֵי הָאֲדָמָה:
וְלֹא־ *מָצְאָה הַיּוֹנָה מָנוֹחַ לְכַף־רַגְלָהּ *וַתָּשָׁב אֵלָיו
אֶל־הַתֵּבָה כִּי מַיִם עַל־פְּנֵי כָל־הָאָרֶץ וַיִּשְׁלַח יָדוֹ
*וַיִּקָּחֶהָ *וַיָּבֵא אֹתָהּ אֵלָיו אֶל־הַתֵּבָה: *וַיָּחֶל עוֹד
שִׁבְעַת יָמִים אֲחֵרִים *וַיֹּסֶף שַׁלַּח אֶת־הַיּוֹנָה מִן־הַתֵּבָה:
וַתָּבֹא אֵלָיו הַיּוֹנָה לְעֵת עֶרֶב וְהִנֵּה *עֲלֵה־זַיִת טָרָף
בְּפִיהָ *וַיֵּדַע נֹחַ כִּי־קַלּוּ הַמַּיִם מֵעַל הָאָרֶץ: *וַיָּיָחֶל
עוֹד שִׁבְעַת יָמִים אֲחֵרִים וַיְשַׁלַּח אֶת־הַיּוֹנָה וְלֹא־יָסְפָה
שׁוּב־אֵלָיו עוֹד:

(*a*) Parse fully the words marked *.

(*b*) Syntax of וַיֵּצֵא יָצוֹא וָשׁוֹב.

(*c*) Inflect Kal perfect of קלל.

(*d*) What is force of ה interrogative?

(*e*) Inflect the Kal imperfect of שׁוּב.

(*f*) Syntax of nouns with numerals from 3 to 10.

(*g*) Use of the ׳ in פֶּה with suffixes.

(*h*) Kal imperfect in פ״ו verbs.

1. Translate literally Psalm XXV, 4-12:—

*דְּרָכֶיךָ יְהוָה *הוֹדִיעֵנִי אֹרְחוֹתֶיךָ *לַמְּדֵנִי׃ הַדְרִיכֵנִי
*בַּאֲמִתֶּךָ וְלַמְּדֵנִי כִּי־אַתָּה אֱלֹהֵי *יִשְׁעִי אוֹתְךָ *קִוִּיתִי
כָל־הַיּוֹם׃ *זְכָר־רַחֲמֶיךָ יְהוָה וַחֲסָדֶיךָ כִּי מֵעוֹלָם
הֵמָּה׃ חַטֹּאות נְעוּרַי וּ*פִשְׁעַי אַל־תִּזְכֹּר כְּחַסְדְּךָ
זְכָר־לִי־אַתָּה לְמַעַן טוּבְךָ יְהוָה׃ טוֹב־וְיָשָׁר יְהוָה
עַל־כֵּן *יוֹרֶה חַטָּאִים בַּדָּרֶךְ׃ יַדְרֵךְ עֲנָוִים בַּמִּשְׁפָּט
וִילַמֵּד עֲנָוִים דַּרְכּוֹ׃ כָּל־אָרְחוֹת יְהוָה חֶסֶד וֶאֱמֶת
*לִנְצְרֵי בְרִיתוֹ וְעֵדֹתָיו׃ לְמַעַן־שִׁמְךָ יְהוָה וְסָלַחְתָּ
לַעֲוֹנִי כִּי רַב־הוּא׃

(*a*) Parse fully the words marked *.

(*b*) Inflect דֶּרֶךְ in the plural with all suffixes.

(*c*) Explain the change of vowels in זְכָר־.

(*d*) Greek and Latin translation of חֶסֶד.

(*e*) Characteristics of Verbs ע״ו in the Kal and Hiphil.

(*f*) Peculiarity of Psalm XXV as to its form.

3. Point and translate the following sentences:—

(*a*) לא טוב היות האדם לבדו.

(*b*) נתתי לך כל אשר לי.

4. Transliterate :—

Wăyyĭbhrā' 'ĕlôhîm 'ĕth hăttannînîm haggĕdhôlîm Wĕ'ēth kol nĕphĕsh hăchăyyā wăyyăr 'ĕlôhîm kî tôbh.

5. Render into Hebrew —

(*a*) Who is greater than God?
(*b*) Adam was the father of Cain.
(*c*) Why didst thou kill the man whom I sent to thee?
(*d*) This is a good book.

6. Explain the signs :—פפפ — סססס.

7. Point, parse and translate the following Masoretic notes :—

מניין — פרקיו — סדריו — חציו — סימן — חזה.

THE NEIL STEWART PRIZE.

HEBREW GRAMMAR

MONDAY, APRIL 22ND :—MORNING, 9 TO 12.

1. Origin of naturally long vowels.

2. In what case does the volatilization of vowels take place?

3. Characteristics of stems in the strong verbs.

4. Inflect—(*a*) the Kal perfect of a ע״ע verb.
(*b*) the Hiphil imperfect of a ע״ו verb.
(*c*) the Hiphil perfect of a ל״ה verb.

5. Inflect—(*a*) סֵפֶר (singular and plural.)
(*b*) חָכָם " " "
(*c*) מַלְכָּה " " "

6. Give an instance of Nominative absolute.

7. Use of the perfect as to the order of time and with וְ consecutive.

8. How are negative sentences expressed in Hebrew?

THE NEIL STEWART PRIZE.

TRANSLATION.

SATURDAY, APRIL 20TH :—AFTERNOON, 2 TO 5.

1. Translate literally Exodus XXXIV, 1 to 8.

(*a*) Meaning and Derivation of מֹשֶׁה.

(*b*) Singular of לֻחוֹת.

(*c*) Syriac and Chaldee for אֶבֶן.

(*d*) Shifting of the tone of וְ consecutive with perfect.

(*e*) Description of סִינַי.

(*f*) Parse (1) יָרֵא (2) יִשְׁתַּחוּ.

(*g*) Derivation of the verb הִשְׁכִּים.

(*h*) Peculiarities of לָקַח in Kal.

(*i*) Analyse בְּעָנָן.

(*j*) Explain the feminine form of the plural of אָב.

(*k*) Point and translate the Masoretic Note in verse וְ.

2. Translate literally Isaiah LXIV.

() Parse the verbs in verses 1 and 2.

(*b*) Parse the nouns in verse 9 and 10.

MENTAL AND MORAL PHILOSOPHY.

INTERMEDIATE EXAMINATION.

LOGIC.

WEDNESDAY, APRIL 17TH:—MORNING, 9 TO 12.

(Write answers to A and B in separate books.)

A

1. Define *Logic*; and explain, with some fulness, the purport of the definition.

2. Explain briefly and illustrate; Negative term, connotation, univocal term, the predicables.

3. Give, with examples, the rules of Logical Definition.

4. Cast the following into strictly logical form and give the converse of each:—

(*a*) Not all opinions deserve attention.
(*b*) Only the moderate have self-control.
(*c*) Everyone guilty of such conduct is mad.
(*d*) No aliens vote in this election.

5. Distinguish carefully, with examples, between Contrary and Contradictory Opposition.

B

6. Construct syllogisms.

(*a*) In the Second Figure to prove, *either that* Logic is not Psychology,
or that
Laws of Science are not Laws of Thought.

(*b*) In the Third Figure to prove, *either that* Despotic governments sometimes bring prosperity,
or that
Learning is not the whole of Education; and reduce them to the First Figure.

7. Explain with illustrations : Fallacy of Accident, Ignoratio Elenchi, Illicit Process of Major Term, Circulus in Probando.

8. Test the following examples, throwing them when possible into syllogistic form, supplying premises or conclusion when necessary, pointing out the character of the argument, and fallacies, if any.

(*a*) Again, when you say that unlearned and ignorant men cannot understand Scripture, I would desire you to come out of the clouds and tell us what you mean; whether that they cannot understand any Scripture or that they cannot understand so much as is sufficient for their direction to heaven. If the first, I believe the learned are in the same case. If the second, every man's experience will confute you; for who is there that is not capable of at sufficient understanding of the story, the precepts, the promises and the threats of the Gospel?

—*Chillingworth.*

(*b*) Will not the good man, in so far as he is good, be found to be sufficient for himself?
Yes.
And, if sufficient, he will want nothing so far as his sufficiency goes?
Of course not.
And, if he does not want anything, he won't feel regard for anything either?
To be sure not.
And, what he does not feel regard for, he cannot love?
Not he.
And, if he does not love, he won't be a friend?
Clearly not.
How, then, I wonder, will the good be ever friends at all with the good?

—*Plato.*

(*c*) I take my ground on the admitted principle: I mean to give peace. Peace implies reconciliation; and when there has been a material dispute, reconciliation does, in a manner, always imply concession on the one part or on the other. In this state of things I make no difficulty in affirming that the proposal ought to originate from us. Great and acknowledged force is not impaired either in effect or in opinion by an unwillingness to exert itself.

But the concessions of the weak are the concessions of fear. When such a one is disarmed, he is wholly at the mercy of his superior.

—*Burke.*

(*d*) In the Confucian work, "Spring and Autumn," it is written that envoys shall not be killed. How can it be supposed that the Throne's policy is to connive in allowing the troops and populace to vent their wrath upon the Foreign Ministers?

—*Chinese Imperial Edict, July* 18, 1900.

THIRD YEAR.

MURRAY'S HANDBOOK OF PSYCHOLOGY, BOOK II, PART I.

WEDNESDAY, APRIL 10TH:—MORNING, 9 TO 12.

(*Answer only eight questions.*)

1. What are the two questions in which the ultimate problems of all science may be summed up?

2. Describe the principal forms of knowledge in the order of their development

3. Compare taste and smell as sources of knowledge.

4. Give some account of the experience of persons born blind and afterwards restored to sight.

5. Explain the principle of the stereoscope.

6. Why are visual illusions of distance accompanied by corresponding illusions of magnitude?

7. Explain abstraction, attention, analysis in relation to one another.

8. State the two antagonistic theories on the Primum Cognitum. What is the truth on the question?

9. Explain the peculiar difficulty in the education of congenital deaf-mutes.

10. Define idealisation, and distinguish its different forms, showing how these become united in one supreme ideal.

11. What is the common characteristic of all the visual arts, and what are their distinctive peculiarities?

12. Distinguish Empiricism and Idealism, *or* explain the doctrine of the Relativity of Knowledge.

THIRD YEAR.

LOGIC OF SCIENTIFIC METHOD

THURSDAY, APRIL 11TH:—MORNING, 9 TO 12.

Answer questions 5, 6, 7 *and* 8, *and four others.*

1. Explain the position of Logic, (*a*) to Epistemology, (*b*) to the Sciences, (*c*) to Psychology. In the last connection distinguish between the different meanings of the terms *objective* and *a priori*.

2. What is Judgment? Distinguish conceptual judgments and judgments concerning facts and reality. What are analytic, synthetic *a priori* and synthetic *a posteriori* propositions? Give examples.

3. Point out the metaphysical assumptions underlying the Aristotelian doctrine of the syllogism, and show the value of the latter in the light of the ultimate aim of the methodology of antiquity *or* characterize the two chief epochs of science, stating when and how the second epoch was ushered in.

4. Examine Bacon's doctrine of method.

5. Criticise Mill's attempt to prove the principle of causation. If it cannot be proved what view must we take of it?

6. Define Nature, Experience (in a scientific sense), Cause, Force, Law of Nature, Derivative Law (give an example), and make a few remarks on "ultimate" and "permanent" causes, "primeval natural agents," the "Uniformity of Nature."

7. Describe carefully the various stages in the inductive process, illustrating *either* by reference to Galileo's discovery and demonstration of the laws of falling bodies *or* to Newton's induction of the law of gravitation. Wherein consisted the generalisation in Newton's case?

8. Describe the Method of Difference, and express your opinion as to its value, illustrating if possible by instances other than those analysed in the lectures.

9. "Hypotheses non fingo." Explain and criticise this utterance of Newton's.

10. State some of the criteria of scientific hypotheses, and say in how far Darwin's theory of the origin of species conforms to these. When may an hypothesis be considered an established theory? Give an instance.

11. What is Explanation? What forms may it take? State and illustrate the conditions under which Explanation and Proof coincide.

B. A. ORDINARY.

MURRAY'S INTRODUCTION TO ETHICS, BOOK II.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 12.

Answer only eight questions.

1. Give a critical exposition of ancient Stoicism.

2. Give an account of the moral theories of Clarke and Wollaston.

3. How far does the uncertainty of speculative theories affect the practical problems of ethics?

4. Discuss the propriety of the terms *perfect* and *imperfect* as applied to a distinction of moral obligations.

5. How would you describe the primary right from which all particular rights are derivative?

6. To what extent may society be described as an organism?

7. What does the moral obligation of loyalty involve?

8. Discuss in its moral aspect the economical Law of Supply and Demand.

9. What is the primary origin of all real rights?

10. Distinguish (*a*) virtue from duty, (*b*) the three aspects of virtue.

11. What place ought to be given to emotion in the moral life?

12. Describe the nature of the discipline required for training habits of self-denial.

THIRD YEAR.

HONOURS IN MENTAL AND MORAL PHILOSOPHY.

THEORY OF KNOWLEDGE WITH PLATO'S THEÆTETUS.

SATURDAY, APRIL 20TH :—MORNING, 9 TO 12.

Answer four questions in A and three in B.

A.

1. Explain what is meant by the "Theory of Knowledge." Show the position of Kant in the Modern Development of this subject.

2. By what lines of speculation was Plato led to formulate the Ideal Theory?

Discuss briefly (*a*) The main points in Aristotle's criticism of that Theory (as given in the Methaphysics rather than the Ethics).

(*b*) Lotze's view, that "The Truth which Plato intended to teach is the validity of truths as such."

3. What are the main contributions of Aristotle towards a Theory of Knowledge? How are we to interpret "The real" in his system?

4. Write brief notes on any four of the following:

(*a*) All is flowing away. *Heraclitus*

(*b*) "As a result of many experiences the universal dawns in the soul." *Aristotle.*

(*c*) "The I think accompanies all my acts of consciousness." *Kant.*

(*d*) The general law of Inference "Things related to the same thing are related to one another." *Bradley.*

(*e*) "The waking consciousness is one continuous judgment."

5. Show the Unity of thought, through the processes of Concept, Judgment, Inference.

6. Give the chief considerations leading to Scepticism in Knowledge. Will any test of truth defy criticism?

B.

7. What do you consider the most valuable elements of a Theory of Knowledge, furnished in the Theætetus?

8. Review the criticisms of the doctrine "Man is the Measure." With what other philosophic theories is it identified by Socrates?

9. Point out and explain the use made of the following, in the Theaetetus.
The Image of the Block of Wax.
The Illustration of the Trojan Horse.
The distinction between *possessing* and *having* knowledge.
The difference between the *whole* and the *all*.

10. Discuss the definition, "Knowledge is true opinion, with right reason," showing how later theories are indebted to this view

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B. A. HONOURS IN MENTAL AND MORAL PHILOSOPHY.

MAINE'S ANCIENT LAW.

SATURDAY, MARCH 30TH:—MORNING, 9 TO 12.

Examiner.....J. CLARK MURRAY, LL.D.

Write a brief essay on any *three* of the following subjects:

1. The jural condition of primitive society.
2. The history of the doctrine of a Law of Nature.
3. Primitive Property.
4. The early history of Contract.
5. The early history of Testamentary Succession.
6. The development of the idea of Crime.

B. A. HONOURS IN MENTAL AND MORAL PHILOSOPHY.

HISTORY OF MODERN PHILOSOPHY.

WEDNESDAY, APRIL 3RD:—MORNING, 9 TO 12.

Answer A and B in separate books.

A.

1. Describe some of the discoveries and inventions near the beginning of modern history, and explain their influence in stimulating and widening human thought.

2. Point out the dualism in the philosophy of Descartes, and explain the methods in which Malebranche, Geulincx and Spinoza respectively endeavour to transcend it.

3. Explain the Monadology, the Pre-established Harmony, and the Optimism of Leibnitz.

B.

1. Discuss the principal external causes which determined the empirical character of English psychology, from Locke to James Mill.

2. In what respects do the theories of Godwin, in *Political Justice*, anticipate the assumptions of contemporary anarchism ?

3. Trace the philosophical connection between the political and social teachings of Rousseau and Paine, respectively ; and show clearly in what broad aspects they differ.

4. State fully the fundamental postulates of Bentham's Utilitarianism and point out the weakness of his professedly complete system.

5. What is meant by the saying that "profession of empirical principles and method need not involve materialism ?"

B. A. HONOURS IN MENTAL AND MORAL PHILOSOPHY.

JAMES' PRINCIPLES OF PSYCHOLOGY, VOL. II.

SATURDAY, APRIL 6TH:—MORNING, 9 TO 12.

Answer only eight questions. Questions 4 and 8 must be attempted by all.

1. Compare Sensation and Perception. Are there any pure or simple Sensations ? Is Perception ever an unconscious inference ?

2. Describe the various types of Imagination. What is the relation of the neural process in Imagination to that in Sensation ?

3. What are Hallucinations and Illusions ? Discuss Binet's theory.

4. Give a summary of James' theory of the perception of space *or* discuss the theory of local signs.

5. "The true opposites of belief, *psychologically* considered, are doubt and inquiry, not disbelief." Explain and illustrate.

6. Describe the intellectual contrast between brute and man and make a few remarks on the different orders of human genius.

7. Define Instinct and discuss the question whether instincts are always blind and invariable.

8. State James' theory of the emotions. What are the objections to and what are the merits of such a theory? Do you consider it adequate?

9. Is the question of free-will insoluble on strictly psychological grounds or must Psychology postulate determinism?

10. Describe the hypnotic condition and discuss the chief opinions held concerning it.

11. Examine the doctrine according to which the experience of the race can account for our necessary or *a priori* judgments.

12. Discuss the evidence for and against the theory of the hereditary transmission of acquired habits.

B. A. HONOURS IN MENTAL AND MORAL PHILOSOPHY

ARISTOTLE'S NICOMACHEAN ETHICS.

MONDAY, APRIL 8TH :—MORNING, 9 TO 12.

Answer not more than *seven* questions.
Full marks may be obtained by answers to *six*. including 3 and 12.

1. "The Ethics of Aristotle are indebted to those aphorisms of the Seven Sages, which contain much that is peculiar to Greek thought, *e.g.*:

Nothing in excess.
The measure is best.
Know thyself."

Illustrate this.

2. Comment on the following:
(*a*) "The present investigation is not in the interests of speculation."
(*b*) "The present inquiry is a kind of politics."

3. "Greek Ethics proceeds from the fact of striving and acting.
What is the highest good? How reached?
Christian Ethics makes the fact of moral judgment the starting-point. Hence a doctrine of duty."
What are the main differences in the treatment of the subject involved in this fundamental distinction?

4. What is the place of Pleasure in Aristotle's system ?

5. Give some account of

(*a*) Commercial justice.
(*b*) Equity (*ἐπιείκεια*).

6. Explain and criticise Stewart's account of the Books on Friendship (VIII and IX) as furnishing

(*a*) A metaphysic of Ethics.
(*b*) An Inquiry into the Principles of Sociology

7. "The high-minded person (*ὁ μεγαλόψυχος*) is the *mise-en-scène* of the philosopher." Discuss this saying.

8. Does Aristotle furnish grounds for the conclusion that the basis of Ethics is rational ? In reference to this question discuss the treatment of *φρόνησις* (Practical Reason).

9. Show the influence of the Forms of Aristotle's philosophy on the method of the Ethics.

10. Review Aristotle's account of the Voluntary and the Involuntary.

11. Furnish from the Ethics illustrations of :

(*a*) Aristotle's method of reviewing popular opinions.
(*b*) The beginnings of Casuistry.

12. Is a Philosophy of Morals possible ?
How is our view of this question affected by a study of Aristotle's Ethics ?

B.A. HONOURS IN MENTAL AND MORAL PHILOSOPHY.

MILL AND SPENCER.

SATURDAY, APRIL 13TH :—MORNING, 9 TO 12.

1. State fully and clearly the distinction drawn by Mill between Fatalism and Determinism. In what sense does he hold that the latter theory is not incompatible with Freedom of the Will, when properly understood ?

2. Explain the nature of the disagreement betwen Mill and Comte as to the possibility of a "Science of Mind."

3. Discuss the value of approximate generalisations as applicable to what is called *Ethology*.

4. What, according to Mill, constitute the most important class of sociological laws.

5. Discuss, in broad outline, "the Relativity of all Knowledge," as explained by Spencer.

6. Make notes on:—The indestructibility of matter, the direction of motion, equilibration, the instability of the homogeneous. Give illustrations.

7. Apply Spencer's formula of evolution to an apposite example of your own selection.

8. Discuss, from your own point of view, the philosophical basis of Spencer's system, and express some independent conclusions regarding its value.

B. A. HONOURS IN MENTAL AND MORAL PHILOSOPHY.

ZELLER'S STOICS, EPICUREANS AND SCEPTICS.

MONDAY, APRIL 15TH:—MORNING, 9 TO 12.

Answer only six Questions.

1. Describe the political and intellectual influences at work in forming the post-Aristotelian philosophy.

2. Tell what you know of the founders of the Stoical and Epicurean schools.

3. Contrast with one another the Stoical and the Epicurean Theories of Nature.

4. Contrast the Stoical Theology with the Epicurean.

5. Sketch *either* the Stoical Theory of Knowledge *or* the Epicurean Canonic.

6. Give an outline of the Stoical Ethics both in its theoretical and in its practical aspects.

7. Give an outline of the Epicurean Ethics.

8. Sketch the teaching of Pyrrho *or* of Timon.

9. Give some account of the New Academy.

B.A. HONOURS IN MENTAL AND MORAL PHILOSOPHY.

WATSON'S OUTLINES OF PHILOSOPHY.

FRIDAY, APRIL 19TH:—MORNING 9 TO 12.

Answer only six questions.

1. Examine the following statement: "The picture of reality obeying the laws of human thought, is as evidently anthropomorphic as any of the other now discarded pictures of the Deity. It is true that an inconsistent reality is not intelligible to us; but that is perhaps a reason why we should confess our failure to understand it." A. Sidgwick, quoted by Watson.

2. Discuss the question whether there is any logical connection between Agnosticism and Scepticism.

3. State and examine carefully *either* Hume's theory of mathematics, *or* Mill's views regarding the foundations of geometry.

4. Give your own views as to the possibility and nature of a teleological interpretation of biological phenomena.

5. What is meant by the opposition of subject and object? Express your opinion as to how far, if at all, the distinction involves a dualism.

6. Explain the significance of Descartes' *cogito ergo sum* doctrine, and point out the destructive character of Kant's criticism of rational Psychology.

7. What are your views regarding Kant's doctrine of the postulates of practical reason?

8. Investigate the grounds of the statement "that a rational faith in God is at the basis of morality."

B.A. HONOURS IN MENTAL AND MORAL PHILOSOPHY.

THE PHILOSOPHY OF KANT.

MONDAY, 22ND APRIL.—MORNING, 9 TO 12.

Answer only six questions.

1. Explain fully the title of Kant's first Kritik, and its relation to the others.

2. Sketch the general drift of the Transcendental Aesthetic with special reference to the notion of space.

3. Give the table of the Categories in its relation to the logical classification of Judgments, and state the principles of Pure Understanding deduced from the Categories.

4. Define Idea, as used by Kant; and explain how each of the Ideas is formed.

5. What is the Antinomy of Pure Reason? State the several Antinomies, and indicate briefly how each is solved.

6. Give Kant's classification of arguments for the existence of God, and indicate how he makes them all rest ultimately on one.

7. What are (*a*) the principle, (*b*) the concept, (*c*) the motive, of Pure Practical Reason?

8. What is the Antinomy of Pure Practical Reason, and how is it solved by Kant?

9. Write a note on the Antinomy of Teleological Judgment.

THIRD YEAR

HONOURS IN MENTAL AND MORAL PHILOSOPHY.

GREEK PHILOSOPHY.

MONDAY, 22ND APRIL.—MORNING, 9 TO 12.

Answer five questions from A and three from B. Write answers to A and B in separate books.

A.

1. Describe the general character of the Ionic School, and give an account of one of the Ionic philosophers in particular.

2. Explain the teaching of the early Atomists of Greece.

3. Describe the characteristic features of the teaching of Socrates.

4. Give a brief account of the Megarics, *or* of the Cyrenaics, *or* of the Cynics.

5. Explain the leading doctrines of the Stoical Ethics.

6. Sketch *either* the Physics *or* the Ethics of the Epicureans.

7. Distinguish the three sceptical movements in the ancient world, and give a brief account of one of them.

8. Give a brief account of the renaissance of speculative Paganism, and of its final collapse.

B.

PLATO AND ARISTOTLE.

1. On what grounds has Plato been regarded
   (*a*) As a sceptical,
   (*b*) As a dogmatic philosopher?
   Which seems to you the truer view?

2. Give some account of the political philosophy of Plato, as it appears in the Republic.

3. How is the notion of the "Potential and the Actual" applied in the development of Aristotle's system?

4. "Man is by nature started, as it were, on an inclined plane of which the goal is the State" (W. Newman). Examine Aristotle's conceptions of "nature," "the end," and "the state," in illustration of this saying.

5. Show the relationship,
Either of Plato to earlier philosophers, *or* of Aristotle to Plato.

THIRD AND FOURTH YEARS.

POLITICAL SCIENCE.

SATURDAY, APRIL 6TH, 1901. AFTERNOON, 2 TO 5.

1. Explain what is meant by the theory of the Separation of Powers, and discuss to what extent it is applied in the structure of modern governments.

2. Discuss in some detail the doctrines of Anarchism, Socialism, "Laissez-Faire," the Social Contract and the policy of Direct Legislation.

3. State clearly the meaning of Parliamentary Government, and contrast its operation in England and in France.

4. Define the relative powers of the House of Lords and the House of Commons, referring to notable instances of conflict.

5. To what extent is the veto power possessed by the King of England, the German Emperor, the President of France, the President of the United States and the State Governors of the United States?

6. Describe fully and contrast the Senate of the United States, the Senate of France and the German Bundesrath.

7. Write a paper on Party Government, considering in especial its more recent tendencies and developments.

MATHEMATICS AND NATURAL PHILOSOPHY.

GEOMETRY AND ARITHMETIC.

THURSDAY, APRIL 11TH :—MORNING, 9 TO 12.

A

1. In a right angled triangle, any rectilineal figure described on the hypotenuse is equal to the sum of the two similar and similarly described figures on the sides containing the right angle.

2. Find a fourth proportional to three given straight lines.

(*a*) If A B C D be a parallelogram, and from D a straight line be drawn meeting A B in E and C B produced in F; show that C F is a fourth proportional to E A, A D and A B.

3. An equilateral triangle is inscribed in a circle, and tangents are drawn at its vertices, prove that the resulting figure is an equilateral triangle with an area four times that of the given triangle.

4. Draw a tangent to a circle from a given point without it.

5. A lake whose area is 45 acres, is covered with ice 3 inches thick, find the weight of the ice in tons, if a cubic foot of ice weigh 920 oz. Reduce your answer to kilograms.

6. Find the compound interest on $4000 for 3 years at 5 per cent.

B.

7. The opposite angles of any quadrilateral inscribed in a circle are together equal to two right angles.

(*a*) State and prove the converse proportion.

8. Describe an isosceles triangle having each of the angles at the base double of the third angle.

Find the length of the base in terms of the side.

9. Prove that if the interior or exterior vertical angle of a triangle be bisected by a straight line which also cuts the base, the base shall be divided internally or externally into segments which have the same ratio as the sides of the triangle.

10. Similar triangles are to one another in the duplicate ratio of their homologous sides.

11. Simplify

$$\left(6\tfrac{3}{7} \text{ of } \frac{5\tfrac{1}{6} - 4\tfrac{7}{12}}{12\tfrac{2}{3} - 7\tfrac{5}{12}}\right) \div \frac{1 + \frac{1}{2\frac{1}{3}}}{2}$$

12. Find the square root of 5,322249.

FIRST YEAR.

TRIGONOMETRY AND ALGEBRA.

FRIDAY, APRIL 12TH:—MORNING, 9 TO 12.

A.

1. Express all the trigonometrical ratios in terms of the cosine.

2. Prove the following:

(1) $\sin (90 - A) = \cos A$

(2) $\cos (180 - A) = -\cos A$

(3) $\sin (-A) = -\sin A$

3. Prove that

$$\sin 18^\circ = \frac{\sqrt{5} - 1}{4}$$

$$\sin 1'' = \frac{1}{206\ 265}$$

4. In a triangle A B C, if A C and B C be 300 and 450 yds. respectively, and the angle C be 58° 20′ 30″; find the other parts of the triangle.

5. Solve the following equations:

(1) $\dfrac{x + 25}{x - 5} = \dfrac{2x + 75}{2x - 15}$

(2) $\dfrac{x}{13} - \dfrac{y}{7} = 6x - 10y = 0$

(3) $\dfrac{5}{x - 2} - \dfrac{4}{x} = \dfrac{6}{x + 6}$

(4) $3x^2 - y^2 = 23$

$2x^2 - xy = 12$

6. A person spends $\frac{1}{3}$ of his income, saves $\frac{1}{4}$, and pays away 5 per cent. as interest at $7\frac{1}{2}$ per cent. on a debt and then has remaining \$110; find the amount of the debt.

B.

7. In any triangle prove:

(1) $\cos A = \dfrac{b^2 + c^2 - a^2}{2\,bc}$

(2) $\dfrac{a+b}{a-b} = \dfrac{\tan \frac{A+B}{2}}{\tan \frac{A-B}{2}}$

(3) $\tan A + \tan B + \tan C = \tan A \cdot \tan B \cdot \tan C$.

8. Prove,

(1) $\sin (A - B) = \sin A \cos B - \cos A \sin B$.

(2) $\sin A - \sin B = 2 \cos \dfrac{A+B}{2} \sin \dfrac{A-B}{2}$.

(3) $\sin 2A = 2 \sin A \cos A$.

9. Prove,

(1) $\log mn = \log m + \log n$.

(2) $\log \dfrac{m}{n} = \log m - \log n$.

(3) $\log m^n = n \log m$.

10. The elevation of the top of a tower standing on the bank of a river to a person standing on the opposite bank is 50° 25′ 40″. When the observer has retired 100 feet in a straight line from the tower the elevation is 45° 30°. Find the breadth of the river and the height of the tower.

11. Simplify $\dfrac{\frac{1+x}{1-x} + \frac{4x}{1+x^2} + \frac{8x}{1-x^2} - \frac{1-x}{1+x}}{\frac{1+x^2}{1-x^2} + \frac{4x^2}{1+x^4} - \frac{1-x^2}{1+x^2}}$

12. Solve the equation $\sqrt{4x+5} - \sqrt{x} = \sqrt{x+3}$.

Find the value of $2\sqrt[3]{189} + 3\sqrt[3]{875} - 7\sqrt[3]{56}$.

Rationalize the denominator of

$$\frac{\sqrt{7} + \sqrt{2}}{9 + 2\sqrt{14}}$$

INTERMEDIATE EXAMINATION.

SPHERICAL TRIGONOMETRY—ALGEBRA.

THURSDAY, APRIL 11th :—9 TO 12 A.M.

(Write the answers in separate books marked A and B respectively, to correspond to the questions.)

A

1. Given the two sides of a right-angled spherical triangle $a = 54° 16'$ $b = 33° 12'$, find the angle A.

2. Prove that the angles at the base of an isosceles spherical triangle are equal.

3. Define the angle between two great circles on a sphere. Prove that it is equal to the angle between the poles of the circles.

4. If two columns of a determinant are identical, the determinant is equal to zero.

5. Insert 4 geometric means between 160 and 5.

6. Eliminate x, y, z, from the equations

$$a_1 x + b y + c_1 z = 0$$
$$a_2 x + b_2 y + c_2 z = 0$$
$$a_3 x + b_3 y + c_3 z = 0$$

B.

7. Transform 6 t 12 from scale twelve to scale eleven.

8. How many numbers greater than a million can be formed with the digits 2, 2, 0, 3, 4, 2, 3 ?

9. Calculate the value of the determinant

$$\begin{vmatrix} 13 & 3 & 23 \\ 30 & 7 & 53 \\ 39 & 9 & 70 \end{vmatrix}$$

10. In a spherical triangle prove that

$$\text{Cos } A = \frac{\cos a - \cos b \cos c}{\sin b \sin c}$$

$$\text{Cos } \frac{A + B}{2} = \frac{\cos \frac{a+b}{2} \sin \frac{C}{2}}{\cos \frac{c}{2}}$$

11. The angles of a spherical triangle are the supplements of the corresponding sides of its polar.

12. In a spherical triangle

$$a = 108^\circ\ 14',\ b = 75^\circ\ 29',\ c = 56^\circ\ 37'.$$

Find A, B, and C.

INTERMEDIATE EXAMINATION.

SOLID GEOMETRY—CONIC SECTIONS—DYNAMICS.

FRIDAY, APRIL 12TH:—MORNING, 9 TO 12.

(Write the answers in separate books marked A B and C respectively, to correspond to the questions.)

A

1. If two parallel planes are intersected by a third plane the lines of intersection will be parallel.

2. The line of intersection of two planes is a straight line.

3. In the parabola the subnormal is of a constant length.

4. If QV is the ordinate to the diameter PV of a parabola, prove

$$QV^2 = 4\ FP,\ PV$$

where F is the focus.

B

5. If two straight lines are cut by three parallel planes they will be cut proportionally.

6. In any trihedral angle the sum of any two of its faces is greater than the third.

7. The area of a parabola cut off by any chord is two-thirds of the area of the triangle formed by the chord and the tangents to the parabola at its extremities.

8. Prove that there are two points in the plane of an ellipse such that the sum of their distances from any point on the curve is constant.

State and prove the corresponding proposition for the hyperbola.

C

9. Find an expression for the greatest height reached by a body projected with given velocity in a given direction.

A shell, 5 seconds after it is discharged, strikes an object distant horizontally 8,000 feet from the gun, and 1,200 feet above it. Find the tangent of the angle at which it was fired.

10. Describe Newton's experiment for finding the law connecting the relative velocities, before and after impact, of two elastic balls.

A ball of mass 302, going 8 feet per second, overtakes another of mass 20 oz. going 2.5 feet per second. What must be the coefficient of elasticity in order that the first ball may be brought to rest?

11. Explain the method of coincidences for determining accurately the time of swing of a pendulum. Point out the advantages of Kater's Pendulum over the simple pendulum in the determination of gravity.

12. What is meant by the *Moment of Inertia* of a body about an axis?

A heavy body of M.I. 12,000 British units is turning 4 times per second on its axis. Express its energy in foot pounds, and write down an expression for its moment of momentum,

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FIRST YEAR.

MATHEMATICS (*Advanced Section.*)

GEOMETRY (*First Paper.*)

THURSDAY, APRIL 18TH:—MORNING, 9 TO 12.

(*Write the answers in separate books marked* A *and* B *respectively to correspond to the questions.*)

A.

1. The rectangle contained by the sum and difference of two sides of a triangle is equal to twice the rectangle contained by the base, and the intercept between the middle point of the base and the foot of the perpendicular from the vertical angle on the base.

2. If two equal triangles be on the same base, but on opposite sides, the line joining the vertices is bisected by the base.

3. Given the sum of the diagonal and two sides of a square, construct it.

4. If a line passing through the centres of two circles cut them in the points A, B, C, D respectively, the square of their direct common tangent is equal to the rectangle AC BD.

5. If ABC be a circle, AB a diameter, PD a fixed line, perpendicular to AB; then if ACP be any line cutting the circle in C and the line PD in P, the rectangle under AP and AC is constant.

6. Given base and ratio of sides of a triangle find the locus of its vertex.

B.

7. If the opposite side AB and CD of a quadrilateral meet in P, and if G H be the middle points of the diagonals AC and BD, the triangle PHG is ¼ the quadrilateral ABCD.

8. If A, B, C, D, etc., be any system of n points, O their centre mean position, P any other point, the sum of the squares of the distances of the points A, B, C, D, etc., from P exceeds the sum of the squares of their distance from O by $n\,\overline{OP}^2$.

9. Draw a common tangent to two circles.

10. Through one of the points of intersection of two given circles draw a line, the sum of whose segments intercepted by the circles shall be a maximum.

11. In any triangle the rectangle contained by two sides is equal to the rectangle contained by the perpendicular on the third side, and the diameter of the circumscribing circle.

12. If four collinear points form an harmonic range, their four polars with respect to any circle form an harmonic pencil.

FIRST YEAR.

MATHEMATICS (*Advanced Section.*)

GEOMETRY (*Second Paper.*)

THURSDAY, APRIL 18TH :—AFTERNOON, 2 TO 5.

(*Write the answers in separate books marked A and B respectively, to correspond to the questions.*)

A

1. If from each angle of a triangle a line be drawn to cut the opposite side and these lines be concurrent, prove the segments of

any side are in the ratio compounded of the ratios of the segments of the other two sides taken in a certain order.

2. The rectangle contained by the perpendiculars from any point in the circumference of a circle on two tangents to the circle is equal to the square of the perpendicular from the same point on their chord of contact.

3. If through a centre of similitude of two circles a secant be drawn cutting one of them in the points R, R', and the other in the corresponding points S, S'; then the rectangles $OR.\ OS'$, $OR'.\ OS$ one constant and equal.

4. The Arithmetic Mean between two lines is to the Geometric Mean as the Geometric Mean is to the Harmonic Mean.

5. Describe a system of circles co-axal with two given circles.

6. If two variable points A, A', one on each of two lines given in position, subtend an angle of constant magnitude at a given point O, the locus of the pole of the line AA' with respect to a given circle X, whose centre is O, is a circle.

B

7. State and prove Pascal's Theorem.

8. Any line cutting a circle and passing through a fixed point is cut harmonically by the circle, the point and the polar of the point.

9. Show that two corresponding tangents of two given circles cut the line joining their centres in the same point.

10. If the perpendiculars of a triangle be produced to meet the circumference of the circumscribed circle, the parts of the perpendiculars intercepted between their point of intersection and the circumference of the circle are bisected by the sides of the triangle.

11. The radical axes of each pair of a system of three circles meet in a point.

12. If A, B, C, D, be four points taken in order on a right line then

$$AB.\ CD + BC.\ AD = AC.\ BD.$$

FIRST YEAR—MATHEMATICS (*Advanced Section.*)

THEORY OF EQUATIONS—ALGEBRA.

FRIDAY, APRIL 19TH, :—MORNING, 9 TO 12.

Write the answers in separate books marked A and B respectively to correspond to the questions.

A.

1. Solve the equation

$$3x^3 - 4x^2 + 88 = 0$$

one root being $2 + \sqrt{-7}$.

2. An equation of an even degree with its last term negative has two real roots.

3. Find the eqnation whose roots are those of

$$x^5 + 4x^3 - x^2 + 11 = 0$$

each diminished by 3.

4. Find by the method of Indeterminate Coefficients the sum of the series.

$$1^2 + 3^2 + 5^2, \text{ etc., .. to } n \text{ terms.}$$

5. Resolve $\dfrac{5x - 11}{2x^2 + x - 6}$ into partial fractions.

6. The present value of \$672 due in a certain time is \$126 if compound interest at $4\frac{1}{2}$ per cent. be allowed, find the time.

B.

7. If an equation $f(x) = 0$, whose coefficients are all real quantities, have for a root the imaginary expression $\alpha + \beta\sqrt{-1}$, it must also have for a root $\alpha - \beta\sqrt{-1}$.

8. Solve the equation $x^5 - 1 = 0$.

9. Between two consecutive real roots a and b if the equation $f(x) = 0$ there lies at least one real root of the equation $f'(x) = 0$.

10. Find a superior limit of the positive roots of the equation

$$x^7 + 4x^6 - 3x^5 + 5x^4 - 9x^3 - 11x^2 + 6x - 8 = 0$$

State and prove the proposition upon which your method is based.

11. A root of the equation $2x^3 - 85x^2 - 85x - 87 = 0$ lies between 40 and 50. Solve the equation by Horner's method.

12. State and prove the Exponential Theorem.

SECOND YEAR.

MATHEMATICS—(*Advanced Section*).

ANALYTIC AND PURE GEOMETRY (*First Paper*).

THURSDAY, APRIL 18TH:—MORNING, 9 TO 1.

1. Find the centre and radius of the circle (referred to rectangular axes).

$$4x^2 + 4y^2 - 12x + 18y + 6 = 0.$$

(*a*) Find the condition that the general equation of the second degree referred to oblique co-ordinates should represent a circle.

2. Find the equation of tangent at a given point on a conic represented by the general equation.

3. Given the base and vertical angle of a triangle, find the locus of the vertex, taking the middle point of the base as origin, and the base as one of the axes.

4. Given the vertical angle of a triangle, and the sum of the reciprocals of the sides, the base will always pass through a fixed point.

5. Given two fixed points A and B, one on each of the axes, if A' and B' be taken on the axes so that $OA' + OB' = OA + OB$ find the locus of the intersections of AB', $A'B$.

6. Prove analytically that the three bisectors of the sides of a triangle are concurrent.

7. Find the equation a line parallel to

$$a_1x + b_1y + c_1 = 0$$

and passing through the intersections of

$$a_2x + b_2y + c_2 = 0$$

and $$a_3x + b_3y + c_3 = 0.$$

8. Taking the three lines given in question (7) as the sides of a triangle, find the equations of the perpendiculars from each of the vertices on the opposite side.

9. Prove geometrically that if in a central conic a second PP' meet the directrix in Z, and F is the corresponding focus, FZ is the external bisector of the angle $P\,F\,P'$, or of its supplement.

10. Prove geometrically that the tangent to a central conic makes equal angles with the focal distances.

11. Prove geometrically that a diameter of a parabola bisects all chords parallel to the tangent at its extremits.

12. Show that the area of a parabola cut off by any chord is two-thirds of the area of the triangle formed by the chord and the tangents to the parabola at its extremities.

SECOND YEAR MATHEMATICS (*Advanced Section.*)

ANALYTIC GEOMETRY (*Second Paper.*)

FRIDAY, APRIL 19TH :—MORNING, 9 TO 12.

1. Given the focus, directrix and the eccentricity of a central conic find its centre and also its axes in magnitude and direction.

2. Find an expression for the area of an ellipse in terms of the data in question 1.

3. If two triangles are such that the vertices of each are the poles of the sides of the other with regard to any *conic section*, prove that the lines joining corresponding vertices are concurrent.

4. If the equation of a conic referred to oblique co-ordinates be

$$ax^2 + 2\,hxy + by^2 + 2\,gx = 0$$

prove the equation of a circle touching it at the origin is

$$x^2 + y^2 + 2\,xy\cos\omega - 2\,rx\sin\omega = 0$$

(*a*) Show that if $g = -rb\sin\omega$ the circle and conic will leave three consecutive points in common.

5. Using the polar equation of the ellipse prove that the sum of the reciprocals of two focal chords at right angles to each other is constant.

6. The tangent at the extremity of any diameter of a central conic is parallel to the conjugate diameter.

7. (*a*) Find the angle between the lines represented by the equation

$$ax^2 + 2\,hxy + by^2 = 0$$

(*b*) Show that these lines are the asymptotes of the conic represented by the general equation.

(*c*) Thence show that the secant of half the angle in (*a*) is the excentricity of the conic.

8. The focal radii in any point of an hyperbola make equal angles with the tangent.

9. Find the length of the perpendiculars from the focus on the tangent at any point of the parabola.

10. Find the polar equation of a circle the origin anywhere, and from the equation prove Euclid, Bk. III., Props. 35 and 36.

11. Given a point and two fixed lines; draw any two lines through the fixed point, and join transversely the points where they meet the fixed lines, find the locus of the intersection of the transverse lines.

12. Given base and difference of the base angles of a triangle, find the locus of the vertex.

SECOND YEAR—MATHEMATICS, (*Advanced Section*).

TRIGONOMETRY—(*Plane and Spherical*)—SOLID GEOMETRY.

MONDAY, APRIL 22ND:—9 TO 12.

Answer in separate books marked A and B respectively.

A.

1. Define $\cosh x$ and $\sinh x$: and prove

$$\cosh 3x = 4\cosh^2 x - 3\cosh x.$$

2. Prove

$$(2\cos\theta)^n = 2\cos n\theta + n\,2\cos(n-2)\theta + \frac{n(n-1}{1.2}\,2\cos(n-n)\theta,$$

etc.

3. If the unit solid angle be defined as the solid angle at the centre of a spnere subtended by an area on the surface equal to r^2, find an expression for the number of such unit angles in any other solid angle at same centre subtended by an area A on the same surface.

(*a*) Prove that the number of unit solid angles (as above defined), in the solid angle subtended by the firmament at any point of the Earth's surface is 2π.

4. In any spherical triangle prove

$$\cot a \sin b = \cot A \sin C + \cos b \cos C.$$

5. Prove that every plane passing through a perpendicular to a plane is also perpendicular to that plane.

6. In a right angled spherical triangle given a and b (which include the right angle) find A, proving the formula you employ.

B.

7. (*a*) Resolve into factors $x^{2n} - 2x^n \cos n\theta + 1$,

(*b*) Solve the equation $x^8 - 2x^4 \cos 60° + 1 = 0$.

8. Prove De Moivre's Theorem for a negative index.

9. Prove that $\frac{\pi}{4} = 4\left(\frac{1}{5} - \frac{1}{3}\frac{1}{5^3} + \frac{1}{5}\frac{1}{5^5} - \text{etc.}\right) - \left(\frac{1}{239} - \frac{1}{3}\frac{1}{239^3} + \frac{1}{5}\frac{1}{239^5} - \text{etc.}\right)$

10. Prove that in a spherical triangle

$$\tan \frac{A+B}{2} = \frac{\cos \frac{a-b}{2}}{\cos \frac{a+b}{2}} \cot \frac{C}{2}.$$

11. The sum of the angles of a spherical triangle lies between two and six right angles.

12. The angle which a straight line makes with its projection on a plane is less than that which it makes with any other straight line that meets in that plane.

SECOND YEAR—MATHEMATICS (*Advanced Section*).

DIFFERENTIAL AND INTEGRAL CALCULUS.

MONDAY, APRIL 22ND:—2 TO 5 P.M.

1. Distinguish between Algebraic and Transcendental functions of x, giving examples of each. What is a discontinuous function ?

2. Define increment, limiting ratio, differential, differential coefficient.

3. Find the differential coefficients of $\sin x$, $\log x$, e^x.

4. If $y = \frac{u}{v}$ prove

$$\frac{dy}{dx} = \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$$

5. Differentiate

$$y = \sin(1 + x^2)$$
$$y = \sin(\log x)$$
$$y = \log \sqrt{a^2 - x^2}.$$

6. Expand $\log(1 + y)$ by Taylor's Theorem.

7. Expand $\sin x$ by MacLaurin's Theorem.

8. Find the value of

$$\frac{x \sin x - \frac{\pi}{2}}{\cos x}$$

when $x = \frac{\pi}{2}$

9. Find the integrals

$$\int \frac{dx}{x \log x} \; ; \int \frac{dx}{x^2 + x - 12} \; ; \int \frac{dx}{\sqrt{x^2 + a^2}} .$$

10. Show how the integral

$$\int \frac{(p + qx)\, dx}{a + 2bx + cx^2}$$

can be broken up into two simpler integrals.

11. Find the value of $\int_0^1 x^n \, dx$.

12. Find the integral

$$\int \frac{(3x^2 - 1)\, dx}{x^2 - 3x + 2}$$

B.A. HONOURS IN MATHEMATICS AND NATURAL PHILOSOPHY

GEOMETRY OF THREE DIMENSIONS.

THURSDAY, APRIL 4TH—MORNING, 9 TO 12.

1. Define the *wave* surface, and find its equation.
(*a*) Show *geometrically* that its section by one of the principal planes breaks up into a circle and an ellipse.

2. Find the partial differential equation of *conoidal* surfaces.

3. Find the equation of the cylinder, the direction cosines of whose edges are l, m, n, and which envelops the ellipsoid,

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$$

4. Prove that if a line of curvature be a *geodesic* it must be plane.

5. Define the *surface of centres*. Prove that the tangent planes to the surface of centres at the two points where any normal meets it cut each other at right angles.

6. Prove that at any point on a surface there are two directions at right angles to each other, such that the normal at a consecutive point taken on either intersects the normal at the given point.

7. The tangent plane at a *parabolic point* on a surface may be considered as a double tangent plane.

8. The locus of the pole of a tangent plane to any quadric, with regard to any confocal is the normal to the quadric surface.

9. Describe a method for constructing an *hyperbolic paraboloid* with threads, and prove its truth.

10. The tangent plane to an hyperboloid of one sheet cuts it in two right lines passing through the point of contact.

11. Prove that any two circular sections of a quadric, of opposite systems, lie on the same sphere.

12. The sum of the squares of the reciprocals of any three conjugate decimeters of an ellipsoid is constant.

THIRD YEAR AND B.A. HONOUR EXAMINATION IN MATHEMATICS AND NATURAL PHILOSOPHY.

ASTRONOMY.

FRIDAY, APRIL 19TH:—MORNING, 9 TO 12.

1. Assuming the expression for the radius of curvature of a conic section

$$\rho = \frac{n^3}{y^3 \frac{d^2\eta}{dx^2}}$$

where n is the normal, apply it to the case of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and thence show, that if c be the compression in the case of the Earth and l the latitude of a place, then for a meridian section, approximately

$$\rho = a\,(1 - 2\,c + 3\,c\,\sin^2 l).$$

2. Explain the method of finding the mass of the Earth by observations on the deviations of the plumb line by a mountain, explaining how the amount of the deviation is determined.

3. Show that the apparent effect of aberration is to cause a star to describe an ellipse in the course of the year, and calculate the major axes of the ellipse.

4. Prove the principle of the composition of rotations, and apply it to calculate the rotation of the plane in Foucault's experiment if made at Montreal.

5. State and prove Lagrange's theorem for value of $F(z)$ if

$$z = x + y\,\phi(z)$$

6. Apply Lagrange's theorem, assuming $u = nt + e \sin u$ to prove

$$u = n\,t + e \sin nt + \frac{e^2}{2} \sin 2\,nt$$

neglecting other terms.

7. Show that there cannot be fewer than two eclipses every year, both of the Sun.

8. Explain the method of converting mean solar time at a given meridian into the corresponding sidereal time.

B.A. HONOUR EXAMINATIONS.

CALCULUS AND THEORY OF PLANE CURVES.

TUESDAY, APRIL 16TH:—AFTERNOON 2 TO 5

1. Prove that

$$\int_0^1 x^{n-1}(1-x)^{m-1}\,dx = \frac{1.2.3.....(m-1)}{n\,(n+1)....(n+m-1)}.$$

2. Define the Gamma function and prove that in all cases

$$\Gamma(p+1) = p\,\Gamma(p).$$

3. State and prove Green's Theorem.

4. If A, B, C, be the moments of inertia of a body with regard to its three principal axes, and I the moment of inertia with regard to a line whose direction angles are α, β, γ, prove

$$I = A\cos^2\alpha + B\cos^2\beta + C\cos^2\gamma.$$

5. State and prove Guldius Theorem for the volume of a solid.

6. Find the length of any arc of the catenary $y = \frac{a}{2}\left(e^{\frac{x}{a}} + e^{\frac{-x}{a}}\right)$

7. Eliminate the arbitrary function

from $z = \dfrac{y^2\phi(y) + x}{1 - x\,\phi(y)}$.

8. Transform

$$\frac{d^2y}{dx^2} + \frac{d^2y}{dy^2} + \frac{d^2y}{dz^2}$$

into a function of r, θ, ϕ, being given

$$x = r\sin\phi\cos\theta,\ y = r\sin\phi\sin\theta,\ z = r\cos\phi.$$

9. Find the asymptotes to the curve

$$y^3 - x^3 = a^2x.$$

10. Trace the Lemniscate

$$(x^2 + y^2)^2 = a^2(x^2 - y^2)$$

and find the equations of the tangents at the origin.

11. Find the position and nature of the double points on

$$(y-e)^2 = (x-a)^4(x-b).$$

12. Find the envelope of a line of given length whose extremities move along two fixed rectangular axes.

13. From a point of inflexion on a cubic but three tangents can be drawn to the curve and their three points of contact lie on a right line.

14. Find the equations of an epicycloid

$$x = (a + b) \cos \theta - b \cos \frac{a + b}{b} \theta$$

$$y = (a + b) \cos \theta - b \sin \frac{a + b}{b} \theta$$

B.A. HONOUR EXAMINATIONS, MATHEMATICS AND NATURAL PHILOSOPHY.

DIFFERENTIAL EQUATIONS.

WEDNESDAY, APRIL 17TH:—2 TO 5 P.M.

1. Solve the equation

$$(mz - ny)\ p + (nx - lz)\ q = ly - mx$$

2. Solve the simultaneous equations

$$4 \frac{dx}{dt} + 9 \frac{dy}{dt} + 44x + 49y = t$$

$$3 \frac{dx}{dt} + 7 \frac{dy}{dt} + 34x + 38y = e^t.$$

3. Show that the condition of integrability is satisfied, and find the primitive of

$$zy\ dx = zx\ dy + y^2\ dz.$$

4. Prove that the orthogonal trajectory of the curves included in

$$y = cx^n$$

is a family of conics, whatever be the value of n.

5. Solve

$$\frac{d^2y}{dx^2} - x^2 \frac{dy}{dx} + xy = x^{m+1}.$$

6. Integrate

$$1 + \left(\frac{dy}{dx}\right)^2 x \quad \frac{dy}{dx} \frac{d^2y}{dx^2} = a \frac{d^2y}{dx^2} \left\{1 + \left(\frac{dy}{dx}\right)^2\right\}^{\frac{1}{2}}$$

7. Solve

$$(L^2 - 5D + 6)\, y = \log x.$$

8. Solve

$$\frac{d^2y}{dx^2} - 2l\frac{dy}{dx} + (l^2 + m^2)\, z = 0.$$

9. Prove

$$\phi(D)\, e^{ax} = \theta(a)\, e^{ax}.$$

10. Solve

$$my - nxp = yp^2.$$

11. Solve the equation

$$y = x f(p) + \phi(p).$$

12. Solve

$$y = a\frac{dy}{dx} + b\left(\frac{dy}{dx}\right)^2.$$

B.A. AND THIRD YEAR ORDINARY EXAMINATIONS.

ASTRONOMY—OPTICS.

FRIDAY, APRIL 12TH :— MORNING, 9 TO 12.

(Write the answers in separate books marked A and B respectively to correspond to the questions.)

A

1. Distinguish between the Synodic and Periodic Times of the Moon.

How may they be ascertained roughly without the aid of instruments. At what rates do the Sun and Moon respectively travel daily among the stars?

2. Define the First Point of Aries. Explain why it is found in the constellation Pisces, and give the bearing of the fact on the length of the year.

3. Calculate the length of the Earth's shadow from the following data:—

Mean diameter of the Sun as seen from the Earth = 1923″.
Mean diameter of the Earth as seen from the Sun = 17″.
Diameter of the Earth = 7,926 miles.

4. Explain the retrograde motion of an Inferior Planet.

5. Find in what latitude the length of the shortest shadow of a vertical rod on the day of the vernal equinox would be equal to the length of the rod itself.

6. Explain what is meant by the *diurnal libration* of the Moon.

B

7. State the laws of refraction of light which hold true when a ray of light passes from one medium to another. If there are three different media a, b and c, show that $_{a}\mu_{c} = {}_{a}\mu_{b} \times {}_{b}\mu_{c}$ where the symbol $_{a}\mu_{b}$ denotes the refraction index for the light passing from the medium a to the medium b.

Given that the refractive index of flint glass is 1.6 and that of nitric acid is 1.4, find the refractive index of flint glass compared with nitric acid.

8. Describe the arrangement of the magic lantern.

Show that, when an image of an object is thrown upon a screen by means of such a lantern, the distance between the object and screen cannot be less than four times the focal length of the lens used.

A double convex lens of 8 feet focal length is used to throw an image of an object on a screen. The distance between the screen and object is 50 feet, find at what distance from the object the lens must be placed in order to give a distinct image on the screen. If the object is 6 inches in length find the length of the image.

9. Explain fully the principle and method of finding the refractive index of a liquid by means of a microscope. The refractive index of a given liquid is 1.35 and an object is placed 8 inches below the surface of the liquid; find how far below the surface the image will appear to be.

10. Show that the focal length of a lens is given by the formula:

$$\frac{1}{f} = (\mu - 1)\left(\frac{1}{r} - \frac{1}{r^1}\right)$$

where μ is the refractive index and r and r^1 are the radii of curvature of the two surfaces of the lens.

The radius of curvature of each of the surfaces of a double concave lens is 25 cms, and the refractive index of the glass of which the lens is made is 1.55; find the focal length.

11. Describe fully the construction, and explain the principle of the astronomical telescope.

The focal length of the object glass of such a telescope is 25 feet and that of the eyepiece is 15 inches. Find the magnifying power of the instrument and also the distance between the two lenses when it is focused on a distant object.

12. The refractive index for red rays in a given crystal is 1.520 and that of violet is 1.559, while the mean refractive index for white light is 1.557. A double convex lens of focal length 30 inches is made from this crystal. What will be the nature and focal length of a lens which will achromatize the given lens?

THIRD YEAR.

MECHANICS (*New Curriculum.*)

TUESDAY, APRIL 2ND:—MORNING, 9 TO 12.

1. Define the moment of a force about a point, and use it to state the principle of the Lever.

Describe the Chemical Balance, and explain the method of weighing by oscillations. Point out the use of the rider.

2. Give Stevinus' (or any other) proof of the principle of the Inclined Plane.

The base of an inclined plane is 4 feet in length, and the height 3 feet. A force of 8 lbs. weight, acting parallel to the plane, will just prevent 20 lbs from sliding down. Find the coefficient of friction.

What force, acting horizontally, would just cause the weight to move up the plane?

3. An isosceles triangle, weighing 50 lbs., rests (without friction) with its vertex against a vertical wall, and its base, parallel to the wall, on a horizontal plane, so as to make an angle of 30° with the horizontal. It is held in position by a string attached to its centre of gravity, and to a nail, at the same height, in the wall. Find the tension of the string, and the reaction at the vertex.

4. State the Second Law of Motion. How must the unit of Force be chosen so as to write it in the form $MV = Pt$?

5. Describe Atwood's Machine.

If each of the large weights is 1 lb. 4 oz., and the rider 2 oz., what speed will be acquired in 5 seconds from the start?

6. A ball is thrown up with a velocity of 80 feet per second at an angle of 60° with the ground. Find the Time of flight, and the Range.

7. Two elastic balls, of given masses and speeds, collide directly. State clearly the principles on which their velocities after impact may be determined.

8. How is Work measured?

What Horse-Power must a fire engine have, in order to project 12,000 lbs of water per minute to a height of 100 feet, 20 per cent. of the whole work being wasted in friction?

9. How would you find the Specific Gravity of a piece of copper by Nicholson's Hydrometer?

A piece of glass weighs 47 gms. in air, 22 gms. in water, and 25.8 gms. in alcohol. Find the Specific Gravity of the alcohol.

10. The top of a barometer tube is 36 ins. above the mercury in the tank. In consequence of air in the tube it reads 27 ins. when it should read 28.5. What will be the true height when the barometer reads 30 ins.?

11. A cylindrical diving bell is lowered into water, and it is observed that the depth of the top when water fills $\frac{1}{2}$ the bell is $2\frac{5}{8}$ times the depth when water fills $\frac{1}{3}$ of the bell. Find the height of the bell, if the water barometer stands at 34 feet.

B. A. ORDINARY.

MECHANICS.

TUESDAY, APRIL 16TH :—MORNING, 9 TO 12.

1. Find the magnitude of two forces, such that if they act at right angles their resultant is $\sqrt{58}$, whilst if they act at an angle of 60°, it is $\sqrt{79}$.

2. Shew how to find the resultant of any number of forces acting at a point. Deduce the conditions of equilibrium.

3. $ABCD$ is a square. Force of 3, 8 and 14 lbs. weight, respectively, act along AB, AC, AD. Find their resultant to two places of decimals.

4. Define the moment of a force about a point, and state the principle of the lever.

A wire passing round a telegraph post is horizontal, and the two portions are inclined at an angle of 60° to one another. The pole is supported by a wire attached to its middle point, and inclined at 60° to the horizon. If the tension in the horizontal wire is 50 lbs. find that in the supporting wire.

5. An isosceles triangle and a square are described on opposite sides of the same base, 12 inches long. Find the height of the triangle, so that thecentre of gravity of the whole may be in the base.

The base of a rough inclined plane is 4 feet long, and the height is 3 feet. A force of 8 lbs, parallel to the plane, will just prevent a weight of 20 lbs. from sliding down. What force, acting horizontally, will just cause the weight to move up the plane?

7. Prove the formula:—$s = at^2/2$.

A stone dropped into a well is heard to strike the water 2.5 seconds later. Find approximately the depth of the well, if $g = 32$, and the velocity of sound is 1,120 feet per second.

8. The large weights of an Atwood's machine are each 14 oz., and the small one is 4 oz. Where must the platforms be set so that the first may be reached in 2 seconds, and the second, 2 seconds afterwards?

9. Find the range and time of flight of a projectile fired at an angle of 30° with a velocity of 1,600 feet per second.

10. Describe Nicholson's Hydrometer and its use in finding the specific gravity of a small piece of metal.

A substance weighs 8.4 gms. in air, 5.1 gms. in water, and 5.7 gms. in alcohol.

Find (1) the specific gravity of the substance, (2) the sp.g. of alcohol.

11. State Boyle's and Charles' laws.

12. 280cc. of a gas at 840 mm. pressure, and 10° C. are reduced to 760 mm. pressure, and 0° C. Find the new volume.

B. A. HONOUR IN MATHEMATICS AND MATHEMATICAL PHYSICS.

ELECTRICITY AND MAGNETISM.

TUESDAY, APRIL 9TH:—9 TO 12 A.M.

1. What is meant by an "electric image."

If a point charge e is placed at a distance x from a metal sphere radius a at zero potential, find the force of attraction between the bodies and the distribution of electricity over the surface of the sphere. Point out the method of solution if the sphere is insulated.

2. Define the terms capacity, specific inductive capacity, and surface density of electricity.

Find the capacity of two concentric circular cylinders separated by a dielectric of given S.I.C. Deduce from the result the capacity of two plane parallel plates.

3. State Ampere's theorem of the equivalent magnetic shell.

Find the magnetic force due to a circular coil of wire conveying a current at any point on the axis of the coil.

Deduce from the result, or otherwise, the magnetic force due to a long uniformly wound solenoid at any point on its axis.

Find, as special cases, the magnetic force (1) at centre of the solenoid, (2) at the end of the solenoid.

4. Derive from first principles the equation of the discharge of a Leyden jar. Show that the discharge is, in general, oscillatory in character. Find the condition that the discharge may be unidirectional.

5. A harmonic E. M. F. is applied to a circuit containing resistance capacity and self-inductance. Find the current in the circuit.

If the capacity is variable, find the condition for maximum current in the circuit.

6. Fund the force between two parallel circular coils of wire conveying equal currents when the coils have the same axis and the radius of one is small compared with the other. Show that the force is a maximum when the distance between the plane of the coils is one-half of the radius of the larger coil.

7. State clearly the principles on which the general electro-magnetic equations are based.

If α, β, g, be the magnetic forces in the direction of axes x, y, z, and u, v, w, the corresponding currents, prove that

$$4\pi u = \frac{dg}{dy} - \frac{d\beta}{dz}.$$

8. Explain why a current is mainly confined to the surface of a conductor when the oscillations are very rapid.

A Leyden jar discharge of given period is passed through a copper rod of large diameter. Find the way in which the current diminishes from the surface inwards.

If the number of oscillations per second is ten million and the specific resistance of copper 1700, find the depth at which the current is one per cent. of its value at the surface of the wire.

B. A. HONOURS IN MATHEMATICS AND NATURAL PHILOSOPHY. LIGHT.

MONDAY, APRIL 22ND:—2 TO 5 P.M.

1. Find an expression for the average kinetic energy of a vibrating particle.

Explain the two ways in which the intensity of illumination may be connected with this expression.

How do (1) the intensity, (2) the amplitude of vibration vary with the distance from the origin?

2. Explain a graphic method of finding the resultant of a system of vibrations of equal amplitude and period, and equal differences of phase.

3. Account for the rectilinear propagation of light on the undulatory theory.

4. Obtain, by means of the Wave Theory, the formula for refraction through a lens.

5. State Gladstone and Dale's law, and give a physical interpretation of it.

6. Describe and give the theory of Michelson and Morley's Interference Refractometer.

7. Light of wave length λ falls perpendicularly on a narrow rectangular aperture of breadth a. Show that the intensity at any point of the diffraction pattern is proportional to

$$a^2 \frac{\sin^2\left(\frac{\pi a}{\lambda}\sin\theta\right)}{\left(\frac{\pi a}{\lambda}\sin\theta\right)^2}$$

8. Describe and give a general explanation of internal Conical Refraction.

9. Obtain Fresuel's expressions for the intensities of the reflected and refracted rays, when light polarized in the plane of incidence falls on a surface.

10. Contrast the rotation of the plane of polarization by optically active substances, with that produced by a magnetic field.

FIRST YEAR.

PHYSICS.

WEDNESDAY, APRIL 17TH :—MORNING, 9 TO 12.

1. State Newton's Second Law of Motion, and write down a formula expressing it.

In an Atwood's machine each of the large weights is 15 oz. and the small one 2 oz. Where must the first platform be placed, so as to be reached in 3 seconds? How many feet will be described in the next 2 seconds?

2. How is the work done by a force measured?

A labourer weiging 180 lbs. carries 40 lbs. of bricks up vertical ladders 50 feet high. Express in footpounds the work done. If he takes 3 minutes to do it, what fraction of a horse power is he developing?

3. *Either*

(*a*) State the principle of the lever and describe an experiment to verify it;

or

(*b*) Show how to find the value of gravity by means of a bullet, a piece of string, a watch, and a tape measure.

4. Describe any method of finding the specific gravity of a piece of brass. An object weighs 47.6 gms. in air, and 33.6 gms. in water. How much of it will be immersed, if it is floated in mercury, specific gravity 13.6?

5. Give the formula for the number of vibrations made per second by the string of a sonometer. In order to raise the note one octave, what change must be made in (1) the tension, *or* (2) the length, *or* (3) the diameter of the string?

6. Explain the occurrence of Beats when two organ pipes are sounding nearly the same note.

7. Give a formula, or a rule, for finding the position and magnitude of the image formed by a convex lens of an object placed before it.

A building 50 feet long is to be photographed on a plate $6\frac{1}{2}$ inches wide, so as to leave $\frac{3}{4}$ inch margin at each side of the plate. The focal length of the lens is 10 inches. How far from the building must the camera be set?

8. Explain (*a*) why the definition is improved by stopping down a lens. (*b*) why the object glasses of telescopes are made of two lenses, one of flint glass and one of crown.

9. Describe the construction and graduation of a mercury thermometer. What temperature centigrade is the same as 86° Fahrenheit?

10. 220 cc. of a gas are given off at a pressure of 748mm. of mercury, and temperature 18° C. What will be the volume at 760 mm. pressure, and 0° C. ?

11. Describe the Electrophorus, and explain its action. What is the source of the energy which appears in the sparks ?

12. State Ohm's law, connecting electromotive force, resistance and current. What is the length of a telegraph line through which a battery of E. M. F. 2.4 volts can send a current of .003 amperes, supposing its resistance to be 16 ohms per mile ?

THIRD YEAR.

EXPERIMENTAL PHYSICS—SOUND, HEAT AND LIGHT.

WEDNESDAY, APRIL 10—MORNING, 9 TO 12.

A.

1. Explain the occurrence of beats when a siren is sounding nearly the same note as a fork.

A siren of 15 holes has its speed gradually increased, till beats are heard at the rate of 4 per second, with a fork whose vibration number is 256. How many revolutions will it make in 2 minutes, if maintained at this rate ?

2. Describe an experimental method of verifying the formula for the velocity of waves along stretched wire. Hence prove the formula for the Sonometer.

A wire 80 cms. long, of total mass 1.6 gms. vibrates 100 times per second. Find the tension in dynes.

3. Shew that if an open organ pipe and a stopped one give the same note, the former has twice the length of the latter.

Distinguish between reed and flue pipes.

4. Describe carefully how you would proceed to adjust a Spectrometer, and to measure the angle of a prism by means of it.

5. Give two ways of finding the focal length of a convex lens.

A vertical meter scale is distant 3 meters from a convex lens of 25 cm. focal length. Where will the image be formed, and how many mm. divisions in the image will occupy one centimetre in space?

Where must a lens of .5 cm. focal length be placed with regard to this image, so that an eye looking through it may see the second image at a distance of 25 cms.?

Find the magnifying power of the telescope so formed.

6. Describe the spectra of (1) a heated solid, (2) an incandescent gas, (3) the sun. Explain clearly how the velocities of stars in the line of sight have been determined by observations on their spectra.

7. Give a brief explanation of the colours of a soap bubble. Why does a black spot appear just before it bursts?

8. What do you understand by plane-polarized light? Explain how it may be produced by Nicol's prism.

B.

9. What is the relation between the Fahrenheit and Centigrade scales of temperature? How is the latter related to the Absolute scale?

Convert 15° C. to Fahrenheit degrees, and — 40° F. to Centigrade degrees.

10. What are the two fundamental laws of gases, and how are they combined in the Boyle-Charles law?

12. How would you determine:—

(*a*) the coefficient of linear expansion of a metal;

(*b*) the specific heat of copper?

12. In a perfect heat-engine, if the temperature of the source of heat be 130° C., and that of the refrigerator 30° C., what proportion of the heat will be converted into work?

A locomotive burns 6 lbs. of coal per horse-power per hour. Every pound of coal burned in the furnace gives up to the water in the boiler 10,000 British units of heat. What per cent. of the heat generated in the furnace is converted into work?

B. A. ORDINARY.

EXPERIMENTAL PHYSICS—ELECTRICITY AND MAGNETISM.

WEDNESDAY, APRIL 10TH:—9 TO 12 A.M.

1. What is meant by the electric capacity of a condenser and on

what does it depend ? Explain the method of construction of a mica condenser of large capacity.

2. Describe the construction of a quadrant electrometer, and show how it can be used to measure small differences of potential.

3. Define the terms, magnetic field, magnetic line of force, number of lines of force. Draw the lines of force due to a current

(1) in a long uniformly wound solenoid,

(2) in the circular coil of a large tangent galvanometer.

A solenoid 50 cms. long, 4 cms. diameter, uniformly wound with 500 turns of wire carries a current of 5 amperes. Find the intensity of the field at the centre of the solenoid.

4. What observations have to be made to completely determine the direction and total intensity of the earth's magnetic field at any point? State approximately the dip and declination for Montreal.

5. What is the effect of temperature on the resistance of metals ? Show how to make and use a platinum thermometer.

A platinum thermometer of resistance 12.35 ohms at 0° C., is found to have a resistance of 15.21 ohms, when immersed in a bath of hot water. Find the temperature of the water, given the average temperature coefficient of platinum is .0038 between 0° C. and 100° C.

6. Explain fully the construction and action of an induction coil. What is the reason of excessive sparking at the contact breaker and how can it be remedied ?

7. State briefly Faraday's laws of electrolysis.

Define the term, electro-chemical equivalent, and how does it vary with different substances.

A current of 5 amperes is passed for 30 minutes through a copper voltameter. Find the weight of copper deposited, given the electror chemical equivalent of copperis .000328.

8. Two accumulators, *in serirs*, E.M.F. of each 2 volts and internal resistance. .1 ohm, send a current through a coil of manganin wire of 2ohms resistance immersed in oil. Find

1. the current in the circuit,

2. the rate of working of the battery,

3. the number of gramme calories given out in 10 minutes to the oil bath.

9. Describe the fall of potential method of measuring low resistances.

Calculate the specific resistance of copper from the following data. Length of wire 22.6 cms, diameter 2 mms and .00123 ohms resistance.

10. Explain the construction and action of a D'Arsonval galvanometer. What advantages has it over galvanometers of the moving magnet type?

11. Describe the action of a long distance telephone transmitter.

12. What forces are exerted by a magnetic field on a wire conveying a current? A long wire conveying a current passes between the plane pole pieces of a large electromagnet. Draw the lines of force between the pole pieces.

If the length of the pole pieces is 10 cms., strength of current 50 amperes, number of lines of induction per sq. cm. 10,000, find the force on the wire (1) in dynes (2) in pounds.

CHEMISTRY.

SECOND YEAR.

CHEMISTRY.

MONDAY, APRIL 1ST, 1901:—AFTERNOON, 2 TO 5.

1. Given a sample of air mixed with carbonic acid gas, how would you determine experimentally the weight of each of its constituents?

2. What weight of iron pyrites ($Fe\ S_2$) would be required to yield a ton of sulphuric acid? $Fe = 56, S = 32, O = 16$. Describe the method of manufacturing sulphuric acid.

3. Mention the principal compounds of nitrogen and describe carefully the preparation and properties of one of them.

4. From what sources are arsenic and its compounds obtained? Point out the resemblances between arsenic and phosphorus compounds.

5. Describe carefully Marsh's test for arsenic, and how it is distinguished from antimony in applying this method.

6. Tell what you know about the structure and chemistry of ordinary flames.

7. Enumerate the alkali metals, give their general properties, and describe carefully one method for the preparation of metallic sodium.

8. How does aluminium occur in nature, and how is the metal obtained for commercial purposes?

9. What is the source of the metal zinc? What physical and chemical properties distinguish it from lead?

10. State explicitly in what way the formulae $Fe\ Cl_2$ and $Fe\ Cl_3$ are an expression of the law of multiple proportions?

SECOND YEAR.

PRACTICAL CHEMISTRY.

1. Determine the base and acid present in the salt solution, and give a complete account of the method of analysis.

2. By means of the oxalic acid standardise the caustic soda solution and subsequently determine the strengths of the two acid solutions. Express your results in terms of 1 c.c. of solution.
($Na = 23\ H = 1\ O = 16\ C = 12\ Cl = 35.5\ S = 32$).

FACULTY OF ARTS.

ANALYTICAL AND INDUSTRIAL CHEMISTRY.

MONDAY, APRIL 1ST, 1901:—AFTERNOON, 2 TO 5.

1. Describe in detail the ordinary method of filtration and the washing of precipitates, mentioning all precautions, etc., which should be taken.

2. How may chemically pure sodium chloride be prepared?

3. Describe carefully the method of determining the quantity of calcium present in a sample of Iceland Spar.

4. How is the percentage of silica determined in ordinary silicates insoluble in acid?

5. 0.7638 gr. of pure $K_2\ SO_4$ is dissolved in water and the SO_4 precipitated in the ordinary way by means of $Ba\ Cl_2$ solution. After ignition of the precipitate it is found to weigh 1.0021 gr. What is the percentage error in the analysis?

6. Describe two of the following operations as carried on in industrial processes: systematic lixiration, evaporation, under reduced pressure, distillation.

7. Mention the principal solid fuels and discuss their relative values for industrial purposes.

8. What are the commercial sources of sulphur; and how is the sulphur generally obtained from one of these sources?

9. How is salt obtained from its sources in nature?

10. Describe carefully the commercial manufacture of hydrochloric acid.

JUNIOR ORGANIC CHEMISTRY.

MONDAY, APRIL 8TH:—MORNING, 9 TO 12.

1. Discuss the various groups of hydrocarbons, pointing out analogies and differences in their chemical behaviour.

2. How many butyl alcohols are known and how can its particular structural formula be allocated to each?

3. What are the peculiar chemical features of the alcohol, the aldehyde, the acid, and the ketone in the marsh gas series?

4. What are the origin and the meaning of the terms "saponification" and "etherification"?

5. What are the chief substances obtained in the distillation of coal tar?

6. Describe the preparation of aniline from benzene and of phenol from aniline.

9. How may its structural formula be assigned to each of the nitrobrom benzenes?

8. Tell what you know of alizarine.

BOTANY.

ELEMENTARY BIOLOGY—BOTANY.

WEDNESDAY, APRIL 10TH, 1901:—9 TO 12 A.M.

(*Answer eight questions only.*)

1. Describe the structure of a typical cell of the most simple form as illustrated by a selected plant.

2. Give a full account of the structure and life-history of the gametophyte of a fern; show what general alterations arise in this phase of development in the Gymnosperms, and show what constitutes the alternation of generations in these two groups of plants.

3. Is there any evidence to show that the higher plants have been derived from an aquatic ancestry, and that they have passed through an amphibious stage of development? If so, what is the nature of the evidence?

4. Give a full account of the sources of carbonaceous food in
(*a*) A myxomycete or a mushroom.
(*b*) Pleurococcus or a fern, with respect to
(1) The essential conditions.
(2) The nature and distribution of the products formed.

5. Describe fully, the function of respiration in plants with respect to
(*a*) The essential conditions.
(*b*) The products formed.
(*c*) The general effects upon the plant body.

6. Summarize the distinctive characteristics of the Monocotyledons and Dicotyledons, and in particular, discuss the distinctive features of the stem structure.

7. In what group of plants is vascular tissue first differentiated? Give an account of the general functional value of this structure, and show how its functional activity may be modified by age or other circumstances.

8. Compare the sporangia of Pteris, Selaginella, Pinus and an Angiosperm with respect to
(*a*) The situation.
(*b*) The general structure.
(*c*) The kinds of spores produced.

9. Give an account of the process of conjugation in Spirogyra, and show how the sex of the gametes may be determined. Compare with this, the structural differentiation and mode of action of the gametes in Pteris.

10. Give a concise definition of the following terms, and cite illustrations:—

Archichlamydeae, heterosporous, homosporous, sympetalae, protoplasm, petaloideous, gamopetalous.

B. A. ORDINARY AND THIRD YEAR

BOTANY.

WEDNESDAY, APRIL 10TH, 1901 :—2 TO 5 P.M.

1. Write an account of the nutritive processes of the Schizomycetes, giving examples.

2. Outline a classification of the Chlorophyceae and characterize each group.

3. Describe a typical member of the Fucaceae. What evidences of the occurrence of the Phaeophyceae in Palaeozoic times have been observed?

4. Give an account of sexual reproduction in Chara.

5. Discuss the sexuality of the Fungi, supporting the theories advanced by facts drawn from your own studies.

6. Trace the gradual development of the sporophyte in the Hepaticae, giving examples.

7. Compare the gametophytes of Anthoceros, Aspidium and Selaginella.

8. Give a description of the sterile stem of Equisetum arvense.

9. Discuss various theories in regard to "alternation of generations" and the origin of the sporophyte.

GEOLOGY AND MINERALOGY.

THIRD YEAR HONOURS IN GEOLOGY AND MINERALOGY

MINERALOGY.

THURSDAY, 18TH APRIL:—MORNING, 9 TO 12.

1. Explain the nature of the symmetry in the Orthorhombic System of Crystallography. Give also the notation of the faces.

2. Explain the relationship of the Hexoctabedron, Pentogonal Icositetrahedron and Didodecahedron of the Isometric System.

3. What do you understand by twin crystals? Distinguish between contact and penetration twins, and between polysynthetic and cyclic twins.

4. What do you understand by isomorphism? What are the more important groups of isomorphous minerals? Illustrate by means of formulæ.

5. Calculate the formula of a mineral which gave an analysis the following percentage composition:—Sulphur, 16.50; Antimony, 15.30; Arsenic, 0.30; Lead, 67.60; Copper, 0.40.

6. Explain any four of the following terms:—Fluorescence, Schillerization, Asterism, Dichroism, Pseudomorphism, Diathermanous.

7. Name the more important Sulphantimonites and describe any two of them.

8. State what you know with regard to the chemical composition, crystalline form and hardness of Pyrrhotite, Molybdenite, Chalcopyrite, Millerite, and Stibnite.

9. How would you distinguish Cassiterite from Rutite, Psilomilane from Pyrolusite, Argintite from Chalcocite, Cuprite from Zincite, Simonite from Goethite?

10. Describe two of the crystal models shown, giving symbols for the faces. Name also and describe any five of the mineral specimens.

B. A. ORDINARY.

GEOLOGY.

MONDAY, APRIL 15TH:—MORNING, 9 TO 12 AND 2 P.M.

1. What do you understand by the terms Volcanic and Plutonic? How are these two classes of rocks related to one another? What are the essential constituents of the following rocks and to which of the above classes—if to either—do they belong: Granite, Sandstone, Trachyte, Basalt, Diabase?

2. State what you know concerning Faults. Give examples and illustrate your answer by sketches.

3. Draw an outline of the North American continent and show the Protaxes as they appeared at the close of the Eozoic. Explain the subsequent development of the continent about them.

4. State what you know of the Cambrian as developed in Canada.

Name and describe briefly any three of the typical fossils of this system.

5. Describe the nature and succession of the Lower Silurian deposits in the vicinity of Montreal. Describe three of the typical fossils found in them.

6. State what you know of the New Red Sandstone. Where is it developed in Canada?

7. State the evidence which we have for the existence of life upon the earth in Laurentian times.

8. State what you know concerning the subdivision and distribution of the Marine Devonian in North America.

9. (*a*) State what you know concerning the nature and origin of the Drift deposits of Canada.

(*b*) State briefly what you know concerning the following: *Anticlinorium, Geosyncline, Consequent Stream, Glossopterus Flora, Lake Agassiz.*

10. State the zoological or botanical and the geological relations of the following:—*Lingula, Protichnites, Dalmanites, Paradoxides, Triceratops, Trinucleus Rhynconella, Dadoxylon, Spirifer Globigerina.*

2 O'CLOCK P.M.

11. Name the fossils exhibited, and state the geological formations to which they belong.

12. Name and describe the rock specimens.

N.B.—Students in Arts will answer 9 (*b*), but will not answer 9 (*a*). Students in Applied Science will substitute 9 (*a*) for 9 (*b*).

B. A. HONOURS IN GEOLOGY AND MINERALOGY.

MINERALOGY.

THURSDAY, DECEMBER 20TH:—MORNING, 9 TO 12.

1. Describe Wernerite, Nephelite, Microcline and Leucite. How have the optical anomalies in Leucite been explained?

2. Discuss the Chemical Constitution of the Feldspars and the Micas.

3. State what you know with regard to the chemical composition and crystallization of Tetrahedrite, Franklinite, Enstatite, Topas and Titanite.

4. Name the principal Antrydrous Carbonates. Into what groups may they be divided on the basis of Isomorphism? Briefly describe a member of each group.

5. How would you distinguish Cuprite from Zincite, Göthite from Limonite, Pronstite from Pyrargyrite, Zircon from Vesuvianite, Pyromorphite from Mimetite?

6. Explain the constitution of Metasilicates, Orthosilicates and Polysilicates, giving examples of each.

7. Distinguish between clearage planes and planes of parting. Describe clearage as occurring in Sphalerite, Stibmite, Diamond, Fluorite, Topas.

8. Explain the distinction between Uniaxial and Biaxial Crystals.

9. Explain briefly each of the following terms:—Parameter, Zone, Paramorphism, Polymorphism, Hemimorphism.

10. Name the principal Zeolites and describe two members of the group.

AFTERNOON, 2 TO 4.

Describe carefully each of the specimens exhibited.

B. A. HONOURS IN GEOLOGY AND NATURAL HISTORY.

PRACTICAL GEOLOGY AND ORE DEPOSITS.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 12.30.

1. A line A B is drawn across a portion of the geological map (**No. I**) submitted. Construct a horizontal section along this line.

2. Explain the structure of the district represented in the map (**No. II**).

3. Describe in detail the attitude and relations of the strata along the line of section (**No. III**).

4. State what you know concerning the methods of locating and tracing faults.

5. Show how a study of the bedding and jointing of the strata of any locality is important before selecting the ground for a quarry and how these structures may influence the working and output of the quarry.

6. Define the term *Outcrop*. Explain the precautions which must be taken in examining the strata on a steep slope, in order to determine accurately the dip of the strata. Show the effect of *Creep* in this connection and explain what is meant by the *Basset Edges* of a series of beds.

7. State what you know of the results of recent investigations into the question of the enrichment of mineral veins by later metallic sulphides.

8. State what you know of the Pribram ore deposits.

9. Describe any occurrence of ore belonging to the class of Residual Deposits.

10. State what you know of the tin deposits of Cornwall.

11. State what you know of the application of petrographical knowledge to road making.

B. A. HONOURS IN GEOLOGY AND NATURAL HISTORY.

CANADIAN GEOLOGY AND ADVANCED GEOLOGY.

SATURDAY, APRIL 6TH, 1901:—MORNING, 9 TO 12.30.

1. State what you know of the nature and geological relations of the Klondike gold deposits.

2. Give a brief description of the geology and Physical Features of Palestine and show how the geological structure of the country has influenced its history. Illustrate your description by a sketch map.

3. State what you know concerning the classification and origin of soils.

4. Describe briefly the following formations, giving geographical distribution and stratigraphical position: Belly River, Acadian, Pascapoo, Chazy, Nisoconlith.

5. Draw a horizontal section from the Archaean axis across Ontario to the Detroit river.

6. Give the stratigraphical position and petrographical characters of the following formations, and state whether they yield any products of economic value—Keewatin, Kootanie, Nicola, Atlantic Coast, Hastings.

7. Make brief notes on Archaean protaxes, continental ice-sheet, Cypress Hills, First prairie steppe, St. Lawrence and Champlain Fault.

8. State what you know concerning the Carboniferous as developed in the Eastern Border Basin.

9. Describe the geology and general structure of the Rocky Mountains.

10. Refer the three collections of fossils exhibited to their proper formations. Name the fossils.

B. A. HONOURS IN GEOLOGY AND NATURAL HISTORY.

PETROGRAPHY.

TUESDAY, APRIL 9TH:—MORNING, 9 TO 1.

1. What do you understand by Crystallographic and Elasticity Axes? How are they related to one another in Quartz, Hornblende and Augite? Illustrate your answer by sketches.

2 State what you know concerning the occurrences of marble from which the world's supply is chiefly drawn.

3. Describe briefly the following:—Diorite, Diabase, Melaphyse, Picrite, Psammite.

4. Write a somewhat detailed description of Liparite, treating of its mineralogical composition, structure and mode of occurrence. Describe a typical Biotite Liparite as seen under the microscope.

5. Describe Pegmatite, Aplite and Minette. Do any of them contain minerals of economic value? If so what are these minerals and in which of the rocks are they present? How are these rocks related to Granite and to Syenite?

6. Syenite and Phonolite, their essential and commonly occurring accessory constituents and subdivisions. Are they acid or basic?

7. State in detail the changes which take place when a Granite is changed into an Arkose.

8. State what you know concerning the heavy solutions used in perographical investigation, and the methods of their employment.

9. Explain the processes by which the Potsdam Sandstone and the Trenton Limestone became compacted.

10. Name the twenty handspecimens. What structures are exhibited by Nos. 17, 18, 19 and 20?

11. Examine the five thin sections under the microscope. State in each case what minerals are present as well as the name and structure of the rock.

B. A. HONOUR IN GEOLOGY AND NATURAL HISTORY.

PHYSIOGRAPHY.

FRIDAY, APRIL 12TH, 1901:—MORNING, 9 TO 12.30.

1. State what you know concerning the history of the Laurentian Lakes.

2. Classify the Land Forms on Maps A, B and C. What do you know concerning their origin and age?

3. Describe the physical features shown on the model.

4. Comment briefly upon Lake Agassiz, Uplands of Southern New England, Fiords of Norway, Crater Lake, Jura Mountains.

5. Describe the structure and drainage development of a typical Coastal plain.

6. Give a brief description of the physical features of the Eastern Border Basin.

7. State what you know concerning the origin of Valleys, and the controls exerted by them.

8. Describe the members of the planetary system of Winds. How are these modified to form Terrestrial Winds?

B.A. HONOUR IN GEOLOGY AND NATURAL HISTORY.

ADVANCED GEOLOGY.

MONDAY, APRIL 22ND, 1901:—MORNING, 9 TO 12.30.

1. What were the chief services rendered by Lyell to geological science?

2. State what you know concerning the Cosmogonists and their writings.

3. What was Darwin's theory concerning the origin of Coral Reefs? Review briefly the arguments which he adduced in its support.

4. State what you know concerning the geological history of the Rocky Mountains.

5. Give an account of the geology of the Basin Ranges.

6. Describe the structure of the Uinta Mountains.

7. State what you know concerning the geological history of the Crocodile family.

8. Write briefly upon:—*Hesperornis*, *Pterichthys*, *Phenacodus*, *Macrauchenia*, *Anchisaurus* and *Hylonomus*.

9. Give an account from the geological influences which have had a marked inflence on the course of British history.

B. A. HONOURS IN BIOLOGY.

MONDAY, APRIL 22ND :—9 A.M. TO 12 NOON.

WALLACE "*Island Life*" : DARWIN "*Origin of Species.*"

1. Give examples of the manner in which the species belonging to the same genus are distributed.

How do you account for the peculiarities of this distribution?

2. Give an outline of Wallace's modification of Croll's theory of the causes of glacial epochs.

What criticism has been made on views such as Wallace adopts?

3. Give the leading characteristics of the fauna of Madagascar and of Celebes. How does Wallace explain the peculiarities of these islands?

4. What is meant by "unconscious selection"? Give some examples of domestic plants and animals which have been modified in this manner, mentioning the evidence which is available on the subject.

5. What does Darwin mean by "divergence of character." Explain on his theory how it has been brought about and why it must ever tend to increase.

6. How does Darwin account for the origin of the instincts of the honey-bee?

7. Give an outline of the arguments advanced by Darwin to show that the infertility of species when crossed is no disproof of his theory.

B. A. ORDINARY.

ZOOLOGY.

PRACTICAL EXAMINATION.

THURSDAY, APRIL 18TH:—AFTERNOON, 2 TO 5.

1. Dissect the Pigeon so as to expose on one side the pectoral muscles and on the other the structures of the neck and thorax.

Mark with flag-labels

(*a*) the insertion of the pectoralis minor;

(*b*) the extrinsic muscle of the syrinx;

(*c*) the carotid artery;

(*d*) the anastomosis between the jugular veins.

2. Make a permanent preparation of specimen *B*.

Draw it and refer it to its place in the animal kingdom, giving reasons.

3. Make a permanent preparation of a part of the pharynx of *C*.

Draw it, naming the parts.

4. Refer the skull *D* to its position amongst Vertebrates, giving reasons for your answer.

[B, the larva of Echinus miliaris. C, Ciona. D, the skull of a Menopome.]

B. A. ORDINARY.

ZOOLOGY.

THURSDAY, APRIL 18TH:—MORNING, 9 A.M. TO 12 NOON.

Only seven questions are to be attempted.

1. Give an account of the class of Protozoa termed Sporozoa, paying especial attention to those members of the class which are believed to be connected with disease. How are the Sporozoa related to the Lobosa? What bearing has the evidence on this point on the validity of the subphylum "Corticata."

2. Give the characteristic features common to all Platyhelminthes.

Give the theories of Welldon and Lang as to the origin of this group and discuss the evidence for them.

3. Describe the Trochophore larva, mentioning the groups in which it appears and the principal modifications which it undergoes.

How is it related to the Veliger larva, and what is the phylogenetic significance of this latter form?

4. Describe the principal forms of Insect larvae, mentioning the orders in which they appear.

Give a discussion of the amount of ancestral character which persists in these larvae and the causes of the principal secondary modifications.

5. Give a short account of the anatomy of Balanoglossus, pointing out the features which are relied on in support of the view that it is a Vertebrate.

6. Describe the skull of Sphenodon (Rhyncocephala) taken as a type of the Reptilian skull, and point out the modifications which this type has undergone in the various orders of living Reptiles.

7. What is meant by the phrase "the formation of layers" in Embryology?

Describe the formation of layers
(*a*) in the Frog,
(*b*) in the Gecko,
(*c*) in the Rabbit.

8. Define the terms "amnion," "pro-amnion," "allantois."

Give a comparative description of the development of these organs
(*a*) in the Chick,
(*b*) in the Rabbit,
(*c*) in the Opossum
(*d*) in Man.

THIRD YEAR.

ZOOLOGY.

PRACTICAL EXAMINATION.

TUESDAY, APRIL 16TH:—2 TO 5 P.M.

1. Dissect the specimen A so as to expose the circulatory nervous, excretory and reproductive organs.
Mark with flag-labels
(*a*) the left lateral vessel,
(*b*) the sub-œsophageal ganglion.
(*c*) the external vesicle of a nephridium.
(*d*) the fifth right testis.
(*e*) the prostate.

2. Make a permanent preparation of the specimen B.
Sketch your preparation, naming the principal structures shown in it.
N.B.—Marks will be deducted if anything is shown in the sketch which cannot be seen in the specimen.

3. Refer the specimen C to its place in the animal kingdom, giving reasons for your answer.

4. Identify the bone D. as closely as you can

[A, the medicinal leech. B, a polyp of Alcyonium digitatum. C, the book-scorpion. D, the axio-vertebra of the rabbit.]

THIRD YEAR.

ZOOLOGY.

TUESDAY, APRIL 16TH :—MORNING, 9 A.M. TO 12 NOON.

Only seven questions to be attempted.

1. Describe carefully the process of conjugation in Paramoecium. In what relation does it stand to reproduction?

Compare it with the process of sexual reproduction in Hydra.

2. Describe carefully the anatomy of a typical coral-forming animal, noting the relation of the hard parts to the soft parts.

Compare the methods of formation of the skeleton in Tubipora and Gorgonia with that you have described.

3. Define the term pericardium.

Give a description of the pericardium

(*a*) of Cambarus,
(*b*) of Unio,
(*c*) of the Dog-fish.

noting in each case its relation to the coelom and to the blood system.

What light does the development of Peripatus throw on the origin of the pericardium of Arthropoda?

4. Give a general description of the reproductive organs in the types of Mollusca which you have studied. What evidence have we of the origin of the genital ducts in primitive Mollusca?

5. Give a general description of the anatomy of the common sea-urchin (Strongylocentrotus dröebachiensis).

Point out the most important points in which the cake-urchin and the heart-urchin differ from the common urchin, and how far these differences are to be explained by their habits.

6. Give a description of the skull of a common bony fish.

Mention any intermediate type of skull which serves to bridge over the gap between the skull you have described and that of the Dog-fish.

7. Give a description of the organs of a Frog which are used for res-

piration in air, and carefully describe the mechanism by which the air is pumped in.

How does a Frog breathe when it is under water?

8. Give a description of the female reproductive organs in the three sub classes of Mammalia, taking the Rabbit as one of the types.

Can you give any idea of the causes which have led to the differences between the sub-classes in this respect?

FACULTY OF APPLIED SCIENCE.

SESSIONAL EXAMINATIONS.

1901.

FACULTY OF APPLIED SCIENCE.

FIRST YEAR.

ENGLISH COMPOSITION.

THURSDAY, DEC. 20TH:—MORNING, 9 TO 12.

(N. B.—*Candidates must pass both in the answers to the questions and the essay.*)

1. Shew the importance of arrangement in composition. Illustrate your answer by constructing outlines for two-page essays on The City of Montreal and The Use of Alcohol.

2. Give rules for the use of the colon, semi-colon and comma. Define and discuss the structure of the paragraph.

3. What is meant by Force in Rhetoric?

Show the value in this connection, giving examples, of Suspense, Directness of statement, Position in the sentence, and Omission of words.

4. Criticize the following sentences, correcting and explaining the mistakes;

(*a*) The boys threw rocks at each other.
(*b*) He thought some of entering the ministry.
(*c*) For centuries the monument has laid there.
(*d*) He must not go without his father consents.
(*e*) This he was careful of.
(*f*) This is the most unique picture in the gallery.
(*g*) He don't know where he are.
(*h*) The reserved seats are fifty cents nights.
(*i*) He was there most always.
(*j*) Entering the building, a large window is seen on the left.

5. Discuss the length of the sentence and give Blair's laws of unity, with examples.

Conjugate the future simple tense indicative mood of the verb "to give," explaining the forms on etymological grounds.

6. Write an essay about two foolscap pages in length upon ONE of the following:—

University Education in Engineering.
Canada's need of engineers.
The Paris Exposition.
A description of some industry.

FIRST YEAR.

ENGLISH LITERATURE AND COMPOSITION.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 12.

(N.B.—Candidates must pass in both parts of the paper. In A not more than *five* questions are to be attempted.)

A

1. Sketch the life of Shakespeare, paying particular attention to the classification of his plays.

2. What charges were brought against Mowbray, and how were they answered? What brought Bolingbroke back?

3. Trace the history of King Richard after his return from Wales.

4. What was the Spectator? Shew its importance in English literature.

5. How does Addison deal with False Wit and Humour?

6. Give the substance of *either* the Vision of Mirza *or* the Exercise of the Fan.

7. Explain *eight* of the following:—

(*a*) King Rich. Lions make leopards tame.
Mow. Yea, but not change his spots. I. i. 175-6

(*b*) King Rich. Our substitutes at home shall have blank charters. I. iv. 48

(*c*) Gaunt. That blood already, like the pelican
Hast thou tapp'd out and drunkenly caroused. II. ii. 126-7

(*d*) Green. The Earl of Worcester hath broke his staff. II. ii. 58-9

(*e*) Aum. Some honest Christian trust me with a gage. IV. i. 83

(*f*) York. Speak it in French, king; say "pardonne-moi." V. iii. 119

(*g*) The third [couple were] the Genius of a Commonwealth, and a young man of about twenty-two years of age. Public Credit, a Vision.

(*h*) In a late draught of marriage articles a lady has stipulated with

her husband that whatever his opinions are she should be at liberty to patch on which side she pleases.

Party Patches.

(*i*) He is just within the game act and qualified to kill a hare or a pheasant.

Sir Roger at the Assizes.

(*j*) He marched several times at the head of a troop of Scotists and cudgelled a body of Smiglesians half the length of High-street.

Various ways of managing a debate.

(*k*) "Sir Cloudsley Shovel! a very gallant man!.....
..... Dr. Busby, a great man!"

Visit to Westminster Abbey.

(*l*) "Dressed up in a commode and a night-rail."

Woman on horseback.

B

1. Paraphrase.

Gaunt. O, but they say the tongues of dying men
Enforce attention like deep harmony:
Where words are scarce, they are seldom spent in vain,
For they breathe truth that breathe their words in pain.
He that no more must say is listen'd more
Than they whom youth and ease have taught to glose;
More are men's ends mark'd than their lives before.

II. i. 5 11

2. Write an essay on *one* of the following:—
Richard II.
London Clubs.
Practical Work for the Summer Vacation.
Energy.

THIRD YEAR.

GEOLOGY.

MONDAY, APRIL 15TH:—MORNING, 9 TO 12 AND 2 P.M.

1. What do you understand by the terms Volcanic and Plutonic? How are these two classes of rocks related to one another? What are the essential constituents of the following rocks and to which of the above classes—if to either—do they belong: Granite, Sandstone, Trachyte, Basalt, Diabase?

2. State what you know concerning Faults. Give examples and illustrate your answer by sketches.

3. Draw an outline of the North American continent and show the Protaxes as they appeared at the close of the Eozoic. Explain the subsequent development of the continent about them.

4. State what you know of the Cambrian as developed in Canada. Name and describe briefly any three of the typical fossils of this system.

5. Describe the nature and succession of the Lower Silurian deposits in the vicinity of Montreal. Describe three of the typical fossils found in them.

6. State what you know of the New Red Sandstone. Where is it developed in Canada ?

7. State the evidence which we have for the existence of life upon the earth in Laurentian times.

8. State what you know concerning the subdivision and distribution of the Marine Devonian in North America.

9. (*a*) State what you know concerning the nature and origin of the Drift deposits of Canada.

(*b*) State briefly what you know concerning the following : *Anticlinorium, Geosyncline, Consequent Stream, Glossopterus Flora, Lake Agassiz.*

10. State the zoological or botanical and the geological relations of the following :—*Lingula, Protichnites, Dalmanites, Paradoxides, Triceratops, Trinucleus Rhynconella, Dadoxylon, Spirifer Globigerina.*

2 O'CLOCK P.M.

11. Name the fossils exhibited, and state the geological formations to which they belong.

12. Name and describe the rock specimens.

N.B.—Students in Arts will answer 9 (*b*), but will not answer 9 (*a*). Students in Applied Science will substitute 9 (*a*) for 9 (*b*).

PRACTICAL GEOLOGY AND ORE DEPOSITS.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 12.30

1. A line A B is drawn across a portion of the geological map (**No. I**) submitted. Construct a horizontal section along this line.

2. Explain the structure of the district represented in the map (**No. II**).

3. Describe in detail the attitude and relations of the strata along the line of section (**No. III**).

4. State what you know concerning the methods of locating and tracing faults.

5. Show how a study of the bedding and jointing of the strata of any locality is important before selecting the ground for a quarry and how these structures may influence the working and output of the quarry.

6. Define the term *Outcrop*. Explain the precautions which must be taken in examining the strata on a steep slope, in order to determine accurately the dip of the strata. Show the effect of *Creep* in this connection and explain what is meant by the *Basset Edges* of a series of beds.

7. State what you know of the results of recent investigations into the question of the enrichment of mineral veins by later metallic sulphides.

8. State what you know of the Pribram ore deposits.

9. Describe any occurrence of ore belonging to the class of Residual Deposits.

10. State what you know of the tin deposits of Cornwall.

11. State what you know of the application of petrographical knowledge to road making.

PETROGRAPHY.

TUESDAY, APRIL 9TH:—MORNING, 9 TO 1.

1. What do you understand by Crystallographic and Elasticity Axes? How are they related to one another in Quartz, Hornblende and Augite? Illustrate your answer by sketches.

2. State what you know concerning the occurrences of marble from which the world's supply is chiefly drawn.

3. Describe briefly the following:—Diorite, Diabase, Melaphyse, Picrite, Psammite.

4. Write a somewhat detailed description of Liparite, treating of its mineralogical composition, structure and mode of occurrence. Describe a typical Biotite Liparite as seen under the microscope.

5. Describe Pegmatite, Aplite and Minette. Do any of them contain minerals of economic value? If so what are these minerals and in which of the rocks are they present? How are these rocks related to Granite and to Syenite?

6. Syenite and Phonolite, their essential and commonly occurring accessory constituents and subdivisions. Are they acid or basic?

7. State in detail the changes which take place when a Granite is changed into an Arkose.

8. State what you know concerning the heavy solutions used in perographical investigation, and the methods of their employment.

9. Explain the processes by which the Potsdam Sandstone and the Trenton Limestone became compacted.

10. Name the twenty handspecimens. What structures are exhibited by Nos. 17, 18, 19 and 20?

11. Examine the five thin sections under the microscope. State in each case what minerals are present as well as the name and structure of the rock.

ADVANCED GEOLOGY.

MONDAY, APRIL 22ND, 1901:—MORNING, 9 TO 12.30.

1. What were the chief services rendered by Lyell to geological science?

2. State what you know concerning the Cosmogonists and their writings.

3. What was Darwin's theory concerning the origin of Coral Reefs? Review briefly the arguments which he adduced in its support.

4. State what you know concerning the geological history of the Rocky Mountains.

5. Give an account of the geology of the Basin Ranges.

6. Describe the structure of the Uinta Mountains.

7. State what you know concerning the geological history of the Crocodile family.

8. Write briefly upon:—*Hesperornis*, *Pterichthys*, *Phenacodus*, *Macrauchenia*, *Anchisaurus* and *Hylonomus*.

9. Give an account from the geological influences which have had a marked inflence on the course of British history.

THIRD YEAR

MINERALOGY.

THURSDAY, 18TH APRIL:—MORNING, 9 TO 12.

1. Explain the nature of the symmetry in the Orthorhombic System of Crystallography. Give also the notation of the faces.

2. Explain the relationship of the Hexoctabedron, Pentogonal Icositetrahedron and Didodecahedron of the Isometric System.

3. What do you understand by twin crystals? Distinguish between contact and penetration twins, and between polysynthetic and cyclic twins.

4. What do you understand by isomorphism? What are the more important groups of isomorphous minerals? Illustrate by means of formulæ.

5. Calculate the formula of a mineral which gave an analysis the following percentage composition:—Sulphur, 16.50; Antimony, 15.30; Arsenic, 0.30; Lead, 67.60; Copper, 0.40.

6. Explain any four of the following terms:—Fluorescence, Schillerization, Asterism, Dichroism, Pseudomorphism, Diathermanous.

7. Name the more important Sulphantimonites and describe any two of them.

8. State what you know with regard to the chemical composition, crystalline form and hardness of Pyrrhotite, Molybdenite, Chalcopyrite, Millerite, and Stibnite.

9. How would you distinguish Cassiterite from Rutile, Psilomilane from Pyrolusite, Argintite from Chalcocite, Cuprite from Zincite, Simonite from Goethite?

10. Describe two of the crystal models shown, giving symbo's for the faces. Name also and describe any five of the mineral specimens.

THIRD YEAR.

DETERMINATIVE MINERALOGY.

MONDAY, APRIL 22ND, 1901 :—MORNING, 9 TO 11.

1. Give a brief historical sketch of the application of the blowpipe to determinatve mineralogy.

2. Describe the ordinary mouth blowpipe, and tell how it is used in producing oxidising and reducing flames.

3. For what purposes are the following substances employed in determinative mineralogy: Turmeric paper, magnesium, tin-foil, cobalt nitrate fluor-spar, potassium iodide and sulphur, olive oil.

4. How may the hardness of a mineral be determined? What precautions must be employed in making the determination? What scale is used?

5. Describe how the specific gravity of a mineral is determined by means of the Joly balance.

6. Give the principal reactions of the following elements, as employed in determinative mineralogy: Antimony, boron, lead, molybdenum, phosphorus, sulphur, titanium.

7. Give the principal characteristics of the following minerals: Arseno pyrite, sphalerite, ilmenite, halite, wollastonite, pyroxene, serpentine.

8. According to what principles are minerals generally classified for determinative purposes? Give the outlines of such a classification.

MINERAL ANALYSIS.

(*Chemistry and Mining Courses.*)

WEDNESDAY, DEC. 19TH: MORNING, 9 TO 12.

1. Describe the different types of twinning met with in the Feldspars.

2. What do you understand by isomorphism? Give illustrations of groups of isomorphous minerals.

3. Give the characters of the Monoclinic System of Crystallography.

4. Explain the significance of the term form as used by the crystallographer.

5. How may the chemical constitution of Zircon, Topaz, Staurolite and Andaluscite be explained?

5. How would you distinguish Mallerite from Pyrrhotite, Argentite from Chalcocite, Rutile from Cassiterite, Wernerite from Nephelite?

7. Into what groups may the natural Oxides be divided? Briefly describe one member of each group.

9. Explain the relation of the axial and percussion figures in the Micas.

10. Explain the classification of the different varieties of Garnet into groups and sub-groups.

11. Give the blowpipe characters of Sphalerite, Arsenopyrite, Cassiterite, Apatite and Orthoclase.

12. In what ways are pseudomorphs produced? Give illustrations of some of the commonly occurring pseudomorphs.

AFTERNOON, 2 TO 4.

Describe carefully any 15 of the mineral specimens exhibited.

SECOND YEAR.

CHEMISTRY.

MONDAY, APRIL 1ST, 1901:—AFTERNOON, 2 TO 5.

1. Given a sample of air mixed with carbonic acid gas, how would you determine experimentally the weight of each of its constituents?

2. What weight of iron pyrites ($Fe\ S_2$) would be required to yield a ton of sulphuric acid? $Fe = 56$, $S = 32$, $O = 16$. Describe the method of manufacturing sulphuric acid.

3. Mention the principal compounds of nitrogen and describe carefully the preparation and properties of one of them.

4. From what sources are arsenic and its compounds obtained? Point out the resemblances between arsenic and phosphorus compounds.

5. Describe carefully Marsh's test for arsenic, and how it is distinguished from antimony in applying this method.

6. Tell what you know about the structure and chemistry of ordinary flames.

7. Enumerate the alkali metals, give their general properties, and describe carefully one method for the preparation of metallic sodium.

8. How does aluminium occur in nature, and how is the metal obtained for commercial purposes?

9. What is the source of the metal zinc? What physical and chemical properties distinguish it from lead?

10. State explicitly in what way the formulae $Fe\ Cl_2$ and $Fe\ Cl_3$ are an expression of the law of multiple proportions?

PRACTICAL CHEMISTRY.

1. Determine the base and acid present in the salt solution, and give a complete account of the method of analysis.

2. By means of the oxalic acid standardise the caustic soda solution and subsequently determine the strengths of the two acid solutions. Express your results in terms of 1 c.c. of solution.
($Na = 23$ $H = 1$ $O = 16$ $C = 12$ $Cl = 35.5$ $S = 32$).

THIRD YEAR.

INDUSTRIAL CHEMISTRY.

THURSDAY, 4TH APRIL:—AFTERNOON, 2 TO 5.

1. Mention the principal gaseous fuels employed in industrial processes, and describe carefully the method of producing one of them.

2. What are the chief commercial sources of sulphur? Describe how the sulphur is obtained from one of these.

3. Describe either the Barbier Tower System for the manufacture of sulphuric acid or the Hargreaves and Robinson method of manufacturing sodium sulphate and hydrochloric acid.

4. Describe the Chance-Claus process for the treatment of tank waste.

5. What are the different processes employed in the Solvay method of manufacturing soda?

6. Describe in general outline the process for the production of chlorine, and give either Dunlop's method or the Weldon process for the treatment of the "still liquor."

7. What is the chief source of ammonia, and how is it obtained from this source?

8. Mention the principal sources of potash, and tell how the carbonate is derived from one of them.

9. What are the more important fertilizers, what elements should they contain, and what are the chief requisites of an artificial fertilizer?

10. Tell what you know about the manufacture of ordinary glass ware, such as tumblers, etc.

THIRD YEAR (*Chemistry Course*).

ANALYTICAL CHEMISTRY.

FRIDAY, APRIL:—MORNING, 9 TO 12.

1. Describe the colorometric estimation of Manganese in Steel and Pig Iron.

2. Classify the methods employed for the estimation of Sulphur in Iron and Steel, and describe one method.

3. How would you determine the percentage of Iron

(*a*) in a sample of Pyrrhotite, and (*b*) in a sample of Menaccanite?

4. A dolomite contains 97 per cent. of Calcium and Magnesium Carbonates, 3 per cent. of Silica, and 10 per cent. of Magnesia. Calculate the percentage of Carbon Dioxide.

5. Calculate the relative quantities of normal Caustic Soda solution required to neutralize 1 gram of HCl and 1 gram of HBr.

6. What do you understand by a "sanitary analysis" of Water? Explain the interpretation of the results.

7. Explain carefully the principles involved in the estimation of Carben in Iron and Steel.

8. Give Lunge's method for the determination of Sulphur in Pyrites.

In the analysis of a sample of Pyrites 0.50 grm. was employed, and the Barium Sulphate weighed 1.85 grm. What was the percentage of Sulphur in the sample?

9. How would you determine the percentages of Sodium Hypochlorite, Sodium Chlorate and Sodium Chloride in a solution containing all three compounds?

10. Describe the volumetric determination of Antimony by means of a standard Iodine solution.

In a determination of this kind 1.5 grms. of a sample of Tartar Emetic, $K(SbO)C_4H_4O_6$, $\frac{1}{2}H_2O$, were weighed out. 90 c.c. of a deci-normal solution of Iodine were required. Calculate the percentage of Antimony in the sample.

FOURTH YEAR (*Mining Course.*)

Analytical Chemistry.

Friday, April 19th:—Morning, 9 to 12.

1. Explain the Iodide method for the volumetric estimation of Copper, giving equations. What effect would the presence of Arsenic, Lead and Bismuth have?

2. Compare the different methods employed for the reduction of Ferric to Ferrous Salts in volumetric analysis.

3. How would you ascertain the total percentage of Iron

in a sample consisting of Titanic Iron Ore associated with a ferriferous Hornblende?

4. In the estimation of Copper by the Iodide process, how many grams of $Na_2S_2O_3, 5H_2O$ per liter will give a solution such that 1 c.c. —1.00 p.c. of Copper when one gram is taken for analysis?

5. In what conditions does Sulphur exist in Coal? How is the total Sulphur estimated?

6. Explain the volumetric estimation of Zinc by means of Sodium Sulphide.

7. Describe the Molybdate method for the estimation of Lead, explaining the theoretical points involved.

8. Explain the estimation of Chromium in a Chrome Iron Ore by the Sodium Peroxide method, including titration by the Iodine method.

9. Show by means of chemical equations that the value of a solution of Potassium Permanganate in terms of Iron is double its value in terms of Lime.

10. How would you estimate the Phosphorus in a sample of Steel?

11. State briefly how you would determine gravimetrically the proportions of Lead, Copper and Zinc in a sample consisting of Galena, Chalcopyrite and Sphalerite.

FOURTH YEAR.

PHYSICAL CHEMISTRY.

THURSDAY, APRIL 4TH.

1. Give Van't Hoff's application of the gas laws to dilute solutions.

2. Give the Law of Mass Reaction, and discuss in detail the Action of Acetic Acid on Alcohol.

3. Discuss briefly various methods of determining Molecular weights.

4. Write a note on Catalytic Reactions.

5. Hittorf's and Kohlrausch's Laws.

6. Deduce the Dissociation Constant.

7. Describe completely the Daniell cell and the reactions taking place in it, and calculate its E. M. F. ($Zn + SO_4 = Zn\,SO_4 + 106{,}070$ calories; $Cu + SO_4 = Cu\,SO_4 + 55.960$. calories; 1 volt Ampere = 0.236 calories.

8. Describe the ordinary accumulator and give the reaction supposed to take place in charging and discharging.

9. Describe the preparation of any standard cell. Give rule for finding Cathode and Anode. What reaction takes place in it?

FOURTH YEAR.

PHYSICAL CHEMISTRY.

THURSDAY, APRIL 4TH.

1. Describe fully how you would determine the combining weights of Potassium, Chlorine and Silver. (Oxygen = 16.000.)

2. What are the aids to Chemical Analysis in fixing the Atomic weights? Why is the formula of water written H_2O rather than HO or HO_2?

3. Discuss Van der Waals' Equation and Critical Temperature and Pressure. How are these latter measured?

4. Write a short note on the Phase Rule, and give the diagram and necessary explanation for water or sulphur.

5. Write a note on the Periodic Law.

6. Discuss Supersaturation, and tell when crystallization takes place. Draw the temperature-solubility diagram for sodium sulphate.

7. Give the Law of Thermoneutrality. What are Endothermic and what Exothermic reactions? Give examples of each.

8. Discuss neutralization of acids and bases from the standpoint of the dissociation theory.

FOURTH YEAR (*Chemistry Course*).

ORGANIC CHEMISTRY (*First Paper.*)

FRIDAY, DECEMBER 21ST.

1. Give two methods generally applicable to the preparation of ketones. Describe the general properties of these bodies and point

out the close analogy, constitutional and otherwise, between ketones and aldehydes. State also their essential differences.

2. How are glacial acetic and normal butyric acids commercially prepared? Given the two acids, how would you prepare the following derivatives?

(*a*) acetyl chloride, (*b*) acetouitrile, (*c*) acetamide, (*d*) cacodyl oxide, (*e*) normal propyl butyrate?

3. Write a short account of the process of soap and of candle making.

4. What do you understand by the term desmotropy? Briefly discuss the phenomenon with special reference to the cyanogen derivatives.

5. Describe a method for the simultaneous production of fatty amide, imide, and nitrile bases.

State how you would separate and isolate the compounds and the means you would adopt to distinguish between them.

6. Discuss anhydride formation in the α, β, γ, and higher oxy. fatty acids.

7. What are diprimary glycols? How would you establish the constitutional formula of the simplest homologue?

FOURTH YEAR (*Chemistry course*).

ORGANIC CHEMISTRY (*Second Paper.*)

MONDAY, APRIL 1ST.

1. Discuss the stereoisomeric relations of the lactic acids and describe the general methods of racemisation.

2. How may succinic acid be synthesised from its elements? From this acid prepare the following compounds: (*a*) aspartic acid, (*b*) i-malic acid, (*c*) l-tartaric acid, (*d*) mesotartaric acid.

3. Describe the preparation of aceto-acetic and malonic esters. By what series of operations could you obtain (*a*) propionic acid, (*b*) propyl methyl ketone and (*c*) normal valeric acid from these substances respectively?

4. Give a brief account of the preparation and distillation of coal tar, and state how the following products of distillation may be isolated in pure

condition (*a*) Benzene, (*b*) Toluene, (*c*) Phenol, (*d*) Naphthalene, (*e*) Anthracene, (*f*) Phenanthrene. What are the chief uses of these compounds?

5. Discuss the constitution of the benzene molecule with special reference to the hydroterephthalic acids.

6. The following groups or atoms are to be separately substituted for hydrogen in the benzene molecule, viz.:—NO_2, —NH_2, —OH, —Cl, —Br, —I, —CN, —COOH, —SO_2 . OH. State clearly how this may be effected.

7. Describe the technical preparation of the oxyazo, amidoazo and substantive cotton dyes. Give examples of each class, and briefly outline the operations involved in the process of dyeing.

8. How would you prove the constitution of the picric acid molecule? Describe carefully the manufacture of this substance, and mention the use of this and other similarly constituted compounds in the preparation of modern explosives.

THIRD YEAR (*Mining Course.*)

QUANTITATIVE ANALYSIS.

FRIDAY, 19TH APRIL:—MORNING, 9 TO 12.

1. Describe carefully how you would determine the specific gravity of a piece of granite by means of the chemical balance.

2. How may pure calcium carbonate be prepared?

3. Describe in detail the determination of the quantity of calcium oxide in a sample of pure calcium carbonate.

4. How would you determine the quantity of sulphur in a sample of zinc blende?

5. Describe the method of determining the quantity of magnesia in a soluble salt of magnesium.

6. What precautions are to be taken in the filtering and washing of precipitates, and what means are recommended for accelerating filtration?

7. 1 gr. of $CuSO4.5H2O$ is dissolved and the copper precipitated in the usual way with NaOH. The precipitate after washing, drying, ignition, etc., is found to weigh 0.2981 gr. What is the theoretical percentage of CuO in the salt.

and what is the percentage found by the above analysis?

8. 0.6 gr. of tartar emetic, $KHC_4H_3(SbO)O_6$, is weighed out, dissolved in water containing tartaric acid and a little hydrochloric acid, and the antimony precipitated as Sb_2S_3 (with a little free S) by means of H_2S. The precipitate is found to weigh 0.3465 gr. A portion of the precipitate weighing 0.2966 gr. is placed in a porcelain boat and carefuly ignited in a stream of CO_2 to drive off water and free sulphur, and it is then found to weigh 0.2664 gr. What is the percentage of antimony in the tartar emetic as determined by this analysis

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FOURTH YEAR (*Chemistry Course.*)

GAS ANALYSIS.

MARCH 30TH—1 p. m.

1. Describe any form of apparatus used in *exact* gas analysis and the principles on which it depends.

2. You are given a mixture of oxygen and nitrogen to analyse, and are required to use the ordinary gas analysis apparatus. Describe as many as possible of the different methods that could be devised, and the precaution, if any, specially necessary in each.

3. When you are unable to carry out the analysis at the place where the gas is that you wish to analyse, what is the best way of procuring samples and storing them?

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GAS ANALYSIS.

PRACTICAL EXAMINATION.

SATURDAY, MARCH 30TH, 10.30 A. M. TO 1 P. M.

300 c. c. of a mixture of Hydrogen and Carbon Monoxide, which may contain small quantities of Carbon Dioxide, Oxygen and Nitrogen, are provided. With this quantity you are required to carry out an analysis having for its object the determination of the percentage of Hydrogen and Carbon Monoxide by two different methods. The Hempel or Hempel-Pettersson apparatus is to be employed.

Write out an account of the methods you employ and the results you obtain.

(If the analysis is not completed by 1 p. m. a reasonable extension of time will be allowed.)

THIRD AND FOURTH YEARS. (*Mining Course*).

ASSAYING.

WEDNESDAY, APRIL 17TH, 1901 :—9 TO 12 A.M.

1. Give answers to the following in oz. troy per 2,000 lbs. av.

Ore used 1/20 A. T. button obtained .02468 grams.
" 1/5 A. T. " " .00625 "
" 2 A. T. " " .00348 "

2. If an ore carries 1.8 % of silver how many oz. does it run? If we take 10.5 grams of ore and find in it .00242 grams of silver how many oz. does it run?

3. Define a reducing agent and name some. Give some oxidizing agents, desulphurizing agents. Give some examples of acid and basic fluxes.

4. Describe fully the scorification assay from weighing the ore to weighing the silver button. What ores are best adapted to this method? What to crucible method?

5. Give a concise description of lead assay and causes of error in assay. What amounts of ore and fluxes would you use to assay (*a*) $Pb\,S + Zn\,S + Fe\,S_2$, (*b*) $Pb\,Co_3 + Ca\,Co_3 + Sio_2$.

6. Give method, amounts of ore and fluxes which you would use for low grade gold ores as follows : (*a*) Quartz, (*b*) Pyrite, (*c*) Arsenopyrite, (*d*) Galena.

7. Given a sample of ore weighing 2 kilos, a sample of 500 grams put through a 100 mesh sieve gave pellets with 0050 grams of gold and the sample after putting through the sieve weighed 492 grams.

$\frac{1}{10}$ A. T. gave $\begin{cases} 0.0455 \text{ grams silver.} \\ 0.0020 \text{ " gold.} \end{cases}$

What was assay of ore in ounces per ton of both gold and silver.

8. Give 5 tons of coarse " run of mine " ore put up in sacks. How would you sample it and get it in condition to assay if it contained free gold.

FOURTH YEAR.

ELECTRO-CHEMISTRY.

WEDNESDAY, APRIL 3RD :—MORNING, 9 TO 12.

Seven questions to be answered.

1. What is Faraday's Law ? What amount of silver would be deposited in an hour from a solution of silver nitrate by a current of 1.5 Amperes ? Ag = 108.

2. What is meant by osmotic pressure, and how can it be measured ?

3. What is meant by dissociation in solution ? What classes of subtances dissociate, and how can the amount of dissociation be measured ?

4. Describe completely the Daniell cell and the reactions taking place in it. Calculate its E. M. F. [$Zn + SO_4 = Zn\ SO_4 + 106{,}070$ calories, $Cu + SO_4 = Cu\ SO_4 + 55{,}960$ calories, 1 volt ampere = 0.236 calories.]

5. Describe completely the measurement of conductivities of solutions and treatment of results.

6. What is the electro-chemical theory of the action which takes place in charging and discharging an accumulator ? What is a chloride accumulator ?

7. How would you determine the amount of free chlorine and how the strength of a sodium chloride solution ? If 11 c.c. of a sodium hydroxide solution are exactly neutralised by 18 c.c. of $\frac{N}{10}$ oxalic acid, how much sodium hydroxide is there in a litre of the solution ?

8. Describe various forms of apparatus for the preparation of sodium hydroxide from sodium chloride.

9. Describe the preparation of carborundum and chrome steel. What are their properties and uses ? How would you determine the value of a sample of calcium carbide ?

FIRST YEAR.

MATHEMATICS, I.

TUESDAY, DEC. 18TH—MORNING, 9 TO 12.30.

1. Prove that the difference of the squares on the sides of a triangle equals twice the rectangle contained by the base and the projection upon it of the median.

2. Prove that the radical axes of three circles meet in a point.

3. The rectangle contained by the diagonals of a quadrilateral inscribed in a circle is equal to the sum of the rectangles contained by the opposite sides.

Hence prove that if an equilateral triangle is inscribed in a circle, and from any point on the circumference straight lines are drawn to the vertices, one of these is equal to the sum of the other two.

4. Prove that the perpendicular from the angular points of a triangle upon the opposite sides all pass through one point.

5. Find the locus of

(1) points in space such that the sum of the squares of their distances from two given points is constant

(2) points equidistant from three given points,

(3) the centres of circles which touch two unequal intersecting circles.

6. A line drawn parallel to a perpendicular to a plane will also be perpendicular to that plane.

7. Find the surface of a sphere.

8. The curved surface of a portion of a sphere cut off by a plane is one quarter the surface of the sphere. Prove that the volume of this portion is $\frac{5}{32}$ of the volume of the sphere.

9. In a parabola prove that the tangent at any point,

(1) bisects the angle between the focal distance of the point and the perpendicular from it upon the directrix,

(2) meets the axis at a point whose distance from the vertex equals the abcissa of the point.

(3) cuts the directrix and latus rectum produced at points equidistant from the focus.

10. What is meant by the *eccentricity* of the ellipse and hyperbola? Show by a figure that in the former it is less and in the latter greater than unity.

11. The diameter of the base, and the slant side of a right circular cone each equals 12 inches. A plane passes through one point on the

circumference of the base and bisects the opposite generating line. Of the ellipse thus formed, find

(1) the length of the major axis,
(2) the eccentricity,
(3) the distance between the foci.

FIRST YEAR.

MATHEMATICS, II.

THURSDAY, APRIL 4TH:—MORNING, 9 TO 1.

1. Factor (1) $a^2(b+c)+b^2(c+a)+c^2(a+b)+2abc$.
(2) $a^3(x+a)+ax(x^2-a_2)+b(x^3+a^3)$.
(3) $9x^6y^2-576y^2-4x^8+256x^2$.

2. Show that

(1) $$\frac{(1-x^2)(1-x^3)}{(1+x)(1-x)^2}-\frac{x^3+\frac{1}{x^3}}{x^2\quad\frac{1}{x^2}-1}=1$$

(2) $$\frac{\left\{9^n\times 3^2\times\frac{1}{3^{-2}}\right\}-27^n}{3^{3n}\times 9}=\frac{8}{9}$$

(3) ${}^nC_r+{}^nC_{r-1}={}^{n+1}C_r$.

3. Solve (1) $\left.\begin{matrix}x^3+y^3=1001\\ y=11\end{matrix}\right\}$

(2) $$\frac{x-1}{x-2}-\frac{x-2}{x-3}=\frac{x-5}{x-6}-\frac{x-6}{x-7}$$

(3) $\left.\begin{matrix}y(y-1)=x(x+1)\\ y+1=x-1\end{matrix}\right\}$

(4) $\sqrt{2x+8}-2\sqrt{x+5}+2=0$

(5) $$\frac{x}{x^2-1}+\frac{x^2-1}{x}=\frac{13}{6}.$$

4. Find the square root of $75-12\sqrt{21}$.

5. If α and β are the roots of $ax^2+bx+c=0$
Show that (1) $(a\alpha+b)(a\beta+b)=ac$.

6. If $\frac{x}{b-c} = \frac{y}{c-a} = \frac{z}{a-b}$ show that

$$x(b+c) + y(c+a) + z(a+b) = 0.$$

7. Find the sum of

(1) 45 terms of $\frac{11}{2} + \frac{21}{4} + 5 + \ldots$

(2) 8 terms of $\frac{2}{3} - \frac{2}{\sqrt{3}} + 2 - \ldots$

8. Find the Arithmetic, Geometric and Harmonic means between 2 and 8, and write down 5 terms of the series which these means form.

9. How many arrangements can be made out of the letters A, B, C, p, q, r,?

How many beginning with a capital?

10. In what number should 20 men be combined so as to form the greatest possible number of combinations?

In how many of these will the same pair of men be found?

11. Show that the first four terms of $(1-3x)^{-\frac{1}{3}}$ are $1 + x + 2x^2 + \frac{14}{3}x^3$; and that the $r+1^{\text{th}}$ term is

$$\frac{1.4.7.10....(3r-2)}{\lfloor r}\, x^r.$$

12. Find the coefficient of x in $\left(x^2 - \frac{a}{2x}\right)^{14}$.

13. Find by means of the Binomial Theorem the cube root of 1004 to 4 places of decimals.

FIRST YEAR.

MATHEMATICS, III.

MONDAY, APRIL 8TH:—MORNING, 9 TO 1.

1. If an arc of 10 feet subtend an angle of 143° 14′ 22″ at the centre of a circle 8 feet in diameter, find the value of π to three places of decimals.

2. Prove that:

(1) $(\operatorname{cosec}\theta - \cot\theta)^2 = \dfrac{1-\cos\theta}{1+\cos\theta}$

(2) $1 + \tan\theta\, 2\tan\theta = \sec 2\theta$.

(3) $\cos 4\theta = 1 - 8\sin^2\theta + 8\sin^4\theta$.

(4) $\dfrac{\sin 3\theta - \cos 3\theta}{\sin\theta + \cos\theta} = 2\sin 2\theta - 1$.

3. Prove that $\cos\theta + \sin\theta = \pm\sqrt{1+\sin 2\theta}$.
Show by a diagram how the choice of signs depends upon the value of θ.

4. Find the values of ($\theta < 360°$) which will satisfy the equations

(1) $3\sin\theta - 2\cos^2\theta = 0$.

(2) $\sin 3\theta + \sin 2\theta + \sin\theta = 0$.

5. In any plane triangle

(1) $\sin A + \sin B - \sin C = 4\sin\dfrac{A}{2}\sin\dfrac{B}{2}\cos\dfrac{C}{2}$.

(2) $\cos\frac{1}{2}(A-B) = \dfrac{a+b}{c}\sin\dfrac{C}{2}$.

(3) Area $= \sqrt{s(s-a)(s-b)(s-c)}$.

6. In the plane triangle ABC, $a = 537.21$, $b = 2665$, $C = 52°\ 18'\ 10''$; find c.

7. In any right angled spherical triangle ABC ($C = 90°$) prove that

(1) $\cos A = \dfrac{\tan b}{\tan c}$

(2) $\cos c = \cos a \cos b$

Show how these may be obtained by means of Napier's Rules.

8. Prove that $\cos A = \dfrac{\cos a - \cos b\cos c}{\sin b\sin c}$ and hence obtain a rule for determining the species of sides and angles of spherical triangles.

9. Show that $\cos S\cos(S-A)$ must always be negative.

10. Prove that $\tan\frac{1}{2}(A+B) = \dfrac{\cos\frac{1}{2}(a-b)}{\cos\frac{1}{2}(a+b)}\cot\dfrac{C}{2}$.
How is the species of $\frac{1}{2}(A+B)$ determined?

11. AOC is a horizontal angle and equal to $132°\ 12'$, BOC is a vertical angle equal to $45°\ 30'$, find the angle between the planes AOB and AOC.

12. Show that the area of a spherical triangle $= \frac{E}{180} \pi r^2 = E_r r$ in which E denotes the number of degrees and E_r the number of radians in the spherical excess.

13. In the spherical triangle in which $a = 69° 50'$, $b = 46° 42'$, $C = 146° 58'$ show that

$$A = 32° 54', \; B = 24° 55', \; c = 109° 39'.$$

FIRST YEAR.

MATHEMATICS, IV.

SATURDAY, APRIL 13TH:—MORNING, 9 TO 12.

1. A balloon rises from the ground with an acceleration 10.

(1) Find the velocity and height after 5 sec.

(2) At the time referred to, a body is thrown out horizontally. Show that it will reach the ground in 4.76 sec.

(3) A spring balance suspended in the balloon supports a body of 16 lbs. mass. How much does the body appear to weigh as the balloon ascends?

2. A shell, when moving at the rate of 100 feet per second, bursts into two fragments whose weights are 50 and 20 lbs. The velocity of the former part is thereby doubled. Find the motion of the latter.

3. Find the angle between the forces 10 and 6 if they are balanced by a force 14.

4. A uniform iron rail, which weighs 100 lbs., is supported by two posts 10 feet apart, the posts being 12 and 8 feet respectively from the ends of the rail. Find the pressures on the posts.

5. Compare the amounts of kinetic energy in (*a*) a 20 lb. mass which has fallen 2 feet, and (*b*) an ounce bullet moving at 200 feet per second.

6. If a 20 ton engine runs at 50 miles per hour on a curve of one mile radius, show that the horizontal pressure on the rails is 1,426 pounds, approximately. (Take 1 ton = 2,240 lbs.)

7. Sketch a system of three pulleys, with three strings, in which

the mechanical advantage $W: P$ is 8, the weights of the pulleys being neglected.

If each pulley weighs 1 lb., find W in terms of P.

8. A body whose specific gravity is $\frac{3}{4}$ is attached to a body of equal volume, and the two together just float in water. Find the specific gravity of B.

A body whose weight is 13 lbs. appears to weigh 8 lbs. in water and 10 lbs. in oil. Find the specific gravity of the oil.

Explain another method of finding the specific gravity of a liquid.

10. The volume of the receiver of an air pump is 3 times that of the barrel. Show that $\frac{37}{64}$ of the pressure has disappeared by the end of the third double stroke.

SECOND YEAR.

MATHEMATICS, I.

WEDNESDAY, DECEMBER 19TH—MORNING, 9 TO 12.30.

1. The angular points of a triangle ABC are (6, 0), (2, — 4), (—2, 10), show that:—

(1) The orthocentre is $\left(\frac{68}{9}, \frac{4}{9}\right)$

(2) The centre of gravity is (2, 2).

(3) The area = 36.

(4) $\tan A = -9$.

2. (1) Find the equation of a circle passing through the points (-6, - 1), (0, -) and the origin.

(2) Show that the tangent at (0, - 1) is $6x - y = 1$.

(3) What is the length of the tangent from (1, 1) to this circle?

3. Show that the curve $(x^2 + y^2)^3 = 4 a^2 x^2 y^2$ is, when expressed in polar co-ordinates, $r = a \sin 2\theta$, and hence sketch the curve.

4. (1) Show that the line $y = mx + \frac{p}{m}$ is a tangent to the parabola $y^2 = 4 px$. Find the equation of a straight line which touches the parabola $y^2 = 12x$ and (2) is parallel to $y = 3x - 4$, (3) makes an angle 45° with this line.

5. Find the area of the ellipse $3x^2 + y^2 = 4$, and that of the inscribed square.

6. A tangent of an ellipse makes an angle θ with the major axis. Show that the area of the triangle formed by the tangent and the two axes is $\frac{1}{2}(a^2 \tan\theta + b^2 \cot\theta)$.

7. (1) Write down the polar of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ with regard to the point (x_1, y_1), and find the polar of a focus of the curve. (2) Show that for any point on the ellipse, the ratio of focal distance to perpendicular on the directrix is constant

8. (1) Find the foci and asymptotes of the hyperbola $16x^2 - 9y^2 = 144$. (2) Find the distance of a focus from an asymptote.

9. The subnormal of an equilateral hyperbola is equal to the abscissa of the point of contact.

SECOND YEAR.

MATHEMATICS, II.

THURSDAY, APRIL 4TH:—MORNING, 9 TO 12.30.

1. Show that (1) $d\left(\tan^{-1}x + \frac{x}{1+x^2}\right) = \frac{2\,dx}{(1+x^2)^2}$,

(2) $d \log(\sec\theta + \tan\theta) = \sec\theta\, d\theta$.

2 Show that

(1) $\int_{\frac{1}{2}}^{1} e^{2x}\, dx = 2.335$,

(2) $\int_{\frac{1}{4}\pi}^{\frac{1}{3}\pi} \tan^4\theta \sec^2\theta\, d\theta = 2.918$,

(3) $\int_{1}^{2} \sqrt{(2x-1)^3}\, dx = 2.918$,

(4) $\int_{0}^{\frac{1}{2}} \frac{dx}{\sqrt{1-2x^2}} = .555$,

(5) $\int_{1}^{\infty} \frac{dx}{x\sqrt{2x^2-1}} = .785$.

3. Also that (1) $\int \frac{(1+x)\,dx}{x^2+x^4} = \log \frac{x}{\sqrt{1+x^2}} - \tan^{-1}x - \frac{1}{x}$,

(2) $\int e^x \sin 2x\, dx = \frac{1}{5} e^x (\sin 2x - 2 \cos 2x)$.

4. Find the asymptotes of the curve $x^2 y^2 = x^2 + y^2$. What kind of a double point is the origin ?

5. What is meant by the evolute of a curve ? Mention some of its properties.

6. The greatest volume which can be made by constructing a cone with a given slant height a is $\frac{2\pi a^3}{9\sqrt{3}}$.

7. The curve $y = x^3$, between $x = 0$ and $x = 1$, revolves about the axis of x. Show that :—

(1) The volume of the solid $= \frac{1}{7}\pi$,

(2) The surface $= \frac{1}{27}\pi (10\sqrt{10} - 1)$,

(3) The moment of inertia of the solid about the axis of $x = \frac{7}{6}m$.

8. The equation of a curve is $y(1 + x^2) = 1$.

(1) Show that $\frac{d^2 y}{dx^2} = \frac{2(3x^2 - 1}{(1 + x^2)^3}$.

(2) Find the points of inflexion.

(3) Prove that the area bounded by the curve, the axis of x, and the ordinates at the points of inflexion, is one-third of the whole area between the curve and its asymptote.

(4) Show that the radius of curvature at the point where $x = 1$ is $\frac{4}{5}\sqrt{5}$.

9. The moment of inertia of a triangle of height h about an axis through the vertex parallel to the base is $m \frac{h^2}{2}$.

SECOND YEAR.

MATHEMATICS, III.

SATURDAY, APRIL 13TH :—MORNING, 9 TO 12 30.

1. A point moves from rest so that its velocity at any time is always equal to one-third of the square of the time. Plot a curve illustrating the motion and find the acceleration at the end of 3 seconds.

2. A train is moving 40 miles an hour when a ball is thrown horizontally out of the window in a direction at right angles to that of the train so as to have a velocity relatively to the train of 44 feet per second. What is the actual velocity of the ball at the moment of projection?

3. An elevator whose mass is 2,240 lbs. is descending a shaft which is 100 feet deep. The cable by which it is suspended has a uniform tension of 1,680 pounds. If the elevator starts from rest at the top of the shaft with what velocity and in what time will it reach the bottom?

What will be the pressure exerted during the descent upon the floor of the elevator by a mass of 200 lbs?

4. If the cable in the preceding question, after passing over a pulley at the top of the shaft, is attached to a car which is thus made to ascend a railway inclined at 30° to the horizontal, find the weight of the car so that the tension in the cable may be as before.

5. A point P moves uniformly in a circle. M is its projection upon a diameter. Show that the velocity and acceleration of M are proportional to MP and OM respectively, O being the centre of the circle.

6. A body dropped from the top of a wall falls to the ground, while a pendulum 6 inches long makes 5 oscillations. Find the height of the wall.

7. A car weighing 10,000 lbs. moves at 30 miles per hour around a curve of 1,000 ft. radius. If its CG is 6 feet above the rails and the track is level, transversely, find

(1) What part of the weight is borne by each rail.
(2) The lateral pressure on the rails.
(3) The inclination of a plumb line suspended from the roof.
(4) The elevation of the outer rail in order that there may be no lateral pressure.

8. Obtain the equation of the path of a particle projected with a velocity u in a direction inclined at an angle θ to the horizontal.

Show that the hodograph of its motion is a straight line.

9. Show how to find graphically the position and magnitude of the resultant of any number of forces acting in the same plane upon a rigid body.

10. Forces of 10, 15, 30 and 25 pounds act along the sides AB, BC, CD, DA of a square, each side being 12 inches long. Show that their resultant is equal to $10\sqrt{5}$ pounds and cuts CD, and AD produced at points 30 inches and 15 inches respectively from D.

11. A circular board has two circular holes cut in it, the centres of these holes being at the middle points of two radii of the board at right angles to each other. Find the position of the CG of the remainder if each of the pieces cut out be equal to $\frac{1}{5}$th of the board.

12. In the accompanying figure find

(1) The reactions at A and B.

(2) The stress in the middle vertical member.

If the support at B is removed and the truss is supported by a tie, acting in the direction CD, find the stress in this tie and the direction and magnitude of the new reaction at A.

THIRD YEAR.

MATHEMATICS, I.

WEDNESDAY, DEC. 19TH—MORNING, 9 TO 12 30.

1. The area of the parallelogram formed by tangents at the extremities of conjugate diameters of an ellipse is constant.

2. Given the conic $5x^2 + 4xy + 2y^2 + x + 7y + 9 = 0$, find :—

(1) The centre.

(2) The value of $\tan\theta$, where θ is the angle which the principal axes make with the co-ordinate axes.

(3) The equation of the curve when referred to the principal axes.

3. Find the angle between the planes

$$2x - y + z = 3,\ x + 2y + z = 5.$$

4. Given the curve $xy = 1 + x^2$:—

(1) Find the asymptotes.

(2) The minimum ordinate.

(3) Show that the radius of curvature at the point of minimum ordinate $= \frac{1}{2}$.

5. When $x = 0$ show that

(1) $\dfrac{\log \sec x}{x^2} = \frac{1}{2}$, (2) $(1+x)^{\frac{1}{x}} = e$.

6. Show that

(1) $\sec x = 1 + \dfrac{x^2}{2!} + \dfrac{4x^4}{4!} + \cdots$

(2) $\sinh x = x + \dfrac{x^3}{3!} + \dfrac{x^5}{5!} + \cdots$

7. Substituting z for $\sqrt{2ax - a^2}$ show that

$$\int \frac{dx}{x\sqrt{2ax - a^2}} = \frac{2}{a} \tan^{-1} \sqrt{\frac{2x}{a} - 1}.$$

8. Show that $\int \tan^n \theta \, d\theta = \dfrac{\tan^{n-1}\theta}{n-1} - \int \tan^{n-2} \theta \, d\theta$.

Hence find the value of $\int_0^{\frac{\pi}{4}} \tan^4 \theta \, d\theta$.

9. Show that the minimum value of $a \tan \theta + b \cot \theta$ is $2\sqrt{ab}$

10. The curve $y = e^{-x}$ revolves about the axis of x. Show that the volume of the solid from $x = 0$ to $x = \infty$ is $\frac{1}{2}\pi$.

11. The surface of the solid formed by revolving the cycloid $x = a(\theta - \sin\theta)$, $y = a(1 - \cos\theta)$ about its base $= \dfrac{64}{3}\pi a^2$.

12. Show the moment of inertia of a circle about a tangent $= m\dfrac{5}{4}r^2$, and that of a thin spherical shell about a diameter $= m\dfrac{2}{3}r^2$.

THIRD YEAR.

MATHEMATICS, II.

MONDAY, APRIL 8TH:—MORNING, 9 TO 12.

1. A body of weight W is drawn up a plane of inclination θ by a force F acting parallel to the plane. Show that the coefficient of friction $= \dfrac{F}{W}\sec\theta - \tan\theta$.

2. Show that for a single pulley $F = \left(1 + 2\,\mu\,\frac{r}{a}\right) W$, nearly, F being the force required to raise W, r and a the radii of the axle and pulley, respectively.

3. The cylinder diameter of an engine that will produce n horse-power at a piston velocity of s feet per minute, under a mean effective pressure of p pounds per square inch, is $205\sqrt{n/ps}$ inches, nearly.

4. An engine exerts on a car weighing 20,000 lbs. a net pull of 2 pounds per ton.

(1) Find the energy after going $2\frac{1}{2}$ miles.

(2) If shunted on a side track with a one per cent. grade where the frictional resistance is 10 pounds per ton, show that it will go $\frac{1}{6}$ mile before coming to rest.

5. Explain with reasons, the method of determining the motion of the centre of gravity of a rigid body.

6. A uniform rod AB, 4 feet long and weighing 2 lbs. per foot, is hinged at A so that B can describe a vertical circle, and is allowed to fall from its highest position.

(1) Show that when $A\,B$ is horizontal the angular acceleration $= 12$ radians / sec^2, and the angular velocity $= 2\sqrt{6}$ radians / sec.

(2) If the end B be suddenly fixed when $A\,B$ is horizontal, show that the impulses at A and B are respectively $\frac{1}{3}\sqrt{6}$, $\frac{2}{3}\sqrt{6}$ pound — sec. units.

(3) If the rod is lowered and allowed to make small oscillations about the vertical, shew that the time $= .907$ sec.

7. A ball weighing 2 lbs. impinges obliquely upon an 8 lb. ball at rest. The coefficient of restitution is $\frac{1}{4}$. Show that after impact the balls will move at right angles to each other.

8. An eight lb. hammer drives a 2 lb. stake 6 in. into the ground striking it with a velocity of 10 feet per sec. Show that the mean resistance of the ground is 30 pounds.

FIRST YEAR.

EXPERIMENTAL PHYSICS—SOUND, HEAT AND LIGHT.

WEDNESDAY, APRIL 10—MORNING, 9 TO 12.

A.

1. Explain the occurrence of beats when a siren is sounding nearly the same note as a fork.

A siren of 15 holes has its speed gradually increased, till beats are heard at the rate of 4 per second, with a fork whose vibration number is 256. How many revolutions will it make in 2 minutes, if maintained at this rate?

2. Describe an experimental method of verifying the formula for the velocity of waves along stretched wire. Hence prove the formula for the Sonometer.

A wire 80 cms. long, of total mass 1.6 gms. vibrates 100 times per second. Find the tension in dynes.

3. Shew that if an open organ pipe and a stopped one give the same note, the former has twice the length of the latter.

Distinguish between reed and flue pipes.

4. Describe carefully how you would proceed to adjust a Spectrometer, and to measure the angle of a prism by means of it.

5. Give two ways of finding the focal length of a convex lens.

A vertical meter scale is distant 3 meters from a convex lens of 25 cm. focal length. Where will the image be formed, and how many mm. divisions in the image will occupy one centimetre in space?

Where must a lens of .5 cm. focal length be placed with regard to this image, so that an eye looking through it may see the second image at a distance of 25 cms.?

Find the magnifying power of the telescope so formed.

6. Describe the spectra of (1) a heated solid, (2) an incandescent gas, (3) the sun. Explain clearly how the velocities of stars in the line of sight have been determined by observations on their spectra.

7. Give a brief explanation of the colours of a soap bubble. Why does a black spot appear just before it bursts?

8. What do you understand by plane-polarized light? Explain how it may be produced by Nicol's prism.

B.

9. What is the relation between the Fahrenheit and Centigrade scales of temperature? How is the latter related to the Absolute scale?

Convert 15° C. to Fahrenheit degrees, and — 40° F. to Centigrade degrees.

10. What are the two fundamental laws of gases, and how are they combined in the Boyle-Charles law?

11. How would you determine:—

(*a*) the coefficient of linear expansion of a metal;

(*b*) the specific heat of copper?

12. In a perfect heat-engine, if the temperature of the source of heat be 130° C., and that of the refrigerator 30° C., what proportion of the heat will be converted into work?

A locomotive burns 6 lbs. of coal per horse-power per hour. Every pound of coal burned in the furnace gives up to the water in the boiler 10,000 British units of heat. What per cent. of the heat generated in the furnace is converted into work?

SECOND YEAR.

EXPERIMENTAL PHYSICS—ELECTRICITY AND MAGNETISM.

WEDNESDAY, APRIL 10TH:—9 TO 12 A.M.

1. What is meant by the electric capacity of a condenser and on what does it depend? Explain the method of construction of a mica condenser of large capacity.

2. Describe the construction of a quadrant electrometer, and show how it can be used to measure small differences of potential.

3. Define the terms, magnetic field, magnetic line of force, number of lines of force. Draw the lines of force due to a current

(1) in a long uniformly wound solenoid,

(2) in the circular coil of a large tangent galvanometer.

A solenoid 50 cms. long, 4 cms. diameter, uniformly wound with 500 turns of wire carries a current of 5 amperes. Find the intensity of the field at the centre of the solenoid.

4. What observations have to be made to completely determine the direction and total intensity of the earth's magnetic field at any point? State approximately the dip and declination for Montreal.

5. What is the effect of temperature on the resistance of metals ? Show how to make and use a platinum thermometer.

A platinum thermometer of resistance 12.35 ohms at 0° C., is found to have a resistance of 15.21 ohms, when immersed in a bath of hot water. Find the temperature of the water, given the average temperature coefficient of platinum is .0038 between 0° C. and 100° C.

6. Explain fully the construction and action of an induction coil. What is the reason of excessive sparking at the contact breaker and how can it be remedied ?

7. State briefly Faraday's laws of electrolysis.

Define the term, electro-chemical equivalent, and how does it vary with different substances.

A current of 5 amperes is passed for 30 minutes through a copper voltameter. Find the weight of copper deposited, given the electrochemical equivalent of copperis .000328.

8. Two accumulators, *in serirs*, E.M.F. of each 2 volts and internal resistance. .1 ohm, send a current through a coil of manganin wire of 2ohms resistance immersed in oil. Find

1. the current in the circuit,
2. the rate of working of the battery,
3. the number of gramme calories given out in 10 minutes to the oil bath.

9. Describe the fall of potential method of measuring low resistances.

Calculate the specific resistance of copper from the following data. Length of wire 22.6 cms, diameter 2 mms and .00123 ohms resistance.

10. Explain the construction and action of a D'Arsonval galvanometer. What advantages has it over galvanometers of the moving magnet type ?

11. Describe the action of a long distance telephone transmitter.

12. What forces are exerted by a magnetic field on a wire conveying a current ? A long wire conveying a current passes between the plane pole pieces of a large electromagnet. Draw the lines of force between the pole pieces.

If the length of the pole pieces is 10 cms., strength of current 50 amperes, number of lines of induction per sq. cm. 10,000, find the force on the wire (1) in dynes (2) in pounds.

FOURTH YEAR (*Electrical Engineering.*)

ELECTRICAL MEASUREMENTS.

FRIDAY, APRIL 12TH :—9 TO 12 A.M.

Not more than nine questions to be attempted.

1. Explain what is meant by the resistance of a conductor in absolute measure. Show that it has the same dimensions as a velocity.

Describe the Lorenz method of determination of the ohm in absolute measure. How is the constancy of the speed observed?

2. A small magnetic needle, to which a mirror is attached, is freely suspended in the meridian. It is deflected by a bar magnet of magnetic moment M (placed in the broadside position). Show how the ratio $\frac{M}{H}$ can be determined. Explain carefully the method of accurately determining the deflection. How does the torsion of the suspension fibre effect the result?

3. Define the terms, intensity of magnetization, total induction and permeability, and show how they vary as the magnetic field is increased from the lowest to the highest observed value.

4. Show from theoretical considerations that the area of the hysteresis loop is a measure of the energy absorbed in unit volume of the iron during a complete cycle. How does the hysteresis loss depend on the value of the maximum induction through the iron?

5. How would you construct a thousandth ohm coil to carry a current of 100 amperes? Show how to accurately determine its resistance given a hundredth ohm standard for comparison.

6. Describe a form of potentiometer suitable to calibrate a voltmeter of 150 volts range. What are the main points to be noted in the calibration of a Western voltmeter? What is the nature of the temperature correction?

7. Explain how the capacity of a condenser can be determined in absolute measure by means of a ballistic galvanometer.

8. Show how to calibrate a ballistic galvanometer. Explain fully how to determine the B and H curve for a specimen by the ballistic method.

9. Describe Violle's absolute standard of illumination ; and the advantages and drawbacks of the amyl acetate lamp as a secondary standard.

How does the candle power of an incandescent lamp vary with the voltage ?

10. Describe the construction and method of setting up a delicate astatic galvanometer. Show how to vary the sensitiveness of the instrument. What relation exists between the period of the needle and the sensibility ?

11. Explain how the nature of the dielectric affects the measurements of capacity of condensers. Show how to compare capacities by the method of mixtures.

THIRD AND FOURTH YEARS.

ARCHITECTURAL ENGINEERING.

1. How does carbon occur in cast iron, and how does the manner of its occurence affect the finished casting ?

State how the presence of sulphur, phosphorus or manganese affects cast iron.

2. State some of the practical points to be considered in regard to the punching of structural steel.

In what ways do riveted joints fail, and what are the usual allowable fibre strains for shop and field riveted joints ?

3. A girder composed of 2 steel beams carries a 12″ brick wall 25′ 0′, high. A floor beam having an end reaction of 5 tons frames into one of these beams at the centre of the span. Find the section modulus of both girder beams. If the girder rests on walls built of good brick in cement mortar, what length of bearing should it have ?

4. Give some of the commonest forms of beam anchors.

5. Give rules for the use of stiffeners in plate girders.

6. Give some of the more common forms of steel columns.

Discuss the relative merits of the Zed-bar, and Gray column.

7. What defects have to be guarded against in designing and casting a hollow cast iron column ?

8. Discuss foundations on soft soils. State the precautions to be taken in pile driving.

9. What are the characteristics of good Portland cement

Give a few simple tests whereby good cement may be distinguished.

10. Design a pier to carry 200 tons. The bearing power of the soil being 3 tons per square foot and the cap stone 3 feet square.

11. What considerations should enter into the choice of stone for a large building?

THIRD YEAR.

GRAPHICAL STATICS.

THURSDAY, DECEMBER 20th:—2 TO 5.30 P. M.

(NOTE.—*Seven questions to be attempted. The figures are to be drawn to as large a scale as possible. Compression lines in both diagrams are to be shown by thick black lines.*

1. Determine the magnitude and position of the resultant of the forces, acting upon the hexagon of reference, Fig. 1.

2. A roof truss, Fig. 2, is loaded symetrically, as shown. Determine the stresses in all the members.

3. Draw the Shearing Force and Bending Moment Diagrams for the system of loads acting on the Beam *A B*, Fig. 3. Make a scale for the Bending Moment Diagram, and mark on the diagram the Bending Moment at $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ span.

4. Determine the stresses in the members of the bridge truss cut by the plane *X Y*, Fig 4.

5. Determine the stresses in all the members of the bridge truss loaded in the manner shown by Fig 5.

6. Determine all the stresses in the crane shown by Fig. 6, when the reactions at the anchorage *A* and support *B* are vertical.

7. The braced pier, Fig. 7, is loaded by horizontal and vertical forces, as shown. Determine all the stresses in the members when the reaction at *C* is vertical.

8. A bow string roof truss, Fig. 8, is stressed by normal wind pressures as shown. Determine the stresses in all the members.

9. Fig. 9 is a cross section of the batter brace of a bridge. Determine its centre of gravity. You may assume that *X Y* is a line of symmetry.

10. The cantilever, shown by Fig. 10, is loaded as shown, and the

reaction at X is horizontal. Determine the stresses in all the members.

11. The Petit truss, Fig. 11, has its bottom chord divided into 13 equal parts and is loaded as shown. Assuming that the stresses in the members 1 and 2 are equal, in 3 and 4 equal, in 5 and 6 equal, and so on, determine the stresses in the members of the frame.

THIRD AND FOURTH YEARS.

THEORY OF STRUCTURES.

FRIDAY, APRIL 12TH:—9 A. M. TO 1 P. M.

(NOTE.—Candidates are to attempt 5 questions in Section I and 4 questions in Section II.)

SECTION I.

1. Define the terms "stress," "strain," "elasticity," "Modulus of Elasticity," "resilience" and "Permanent Set."

2. The fly-wheel on a riveting machine absorbs 8/10 of the total power required, namely 2 3/4 H.P. Each operation takes 2 seconds, and during the operation the revolutions fall from 110 to 65 per minute. Find the moment of inertia of the fly-wheel.

3. A mild steel bar, one square inch in section, is subjected to a tensional stress in the testing machine until fracture takes place. Draw the probable stress strain diagram to scale for the bar, and describe the changes which take place as the test proceeds.

4. Upon what assumptions is the formula

$$\frac{P}{y} = \frac{M}{I} = \frac{E}{R}$$

based, and to what extent are these assumptions inaccurate?

Compare the strengths of a rolled I beam (a) when the web is vertical and (b) when the web is horizontal. Give numerical values for the case of a rolled section where the flanges are each 3 ins. × 1/3 in. and the web is 1/5 inches thick and 4 1/3 inches deep.

5. Show that the stress in a member subjected to a pull P and also bending moment (M) is given by the formula

$$p = \frac{P}{A} \pm \frac{M}{I} y .$$

Calculate the maximum and minimum stresses in a member of circular

section $1\frac{1}{2}$ ins. diameter when subjected to a pull of 6,000 pounds and a bending moment of 4,000 inch pound.

6. A beam 16 feet long, supported at both ends, is loaded uniformly with 500 pounds per foot run. Draw the curves of shearing force and bending moment. In addition draw the curves of S.F. and B.M. when a concentrated load of 3,000 pounds is placed at a distance of 6 feet from one end.

7. Describe what is meant by "shearing stress" and "shearing strain," and define the "Modulus of Rigidity."

Show that shearing stress cannot exist in one direction without an equal intensity of shearing stress in another direction at right angles to the first.

8. Prove that the Twisting Moment (T_m) which can be transmitted by a shaft of diameter D is given by the formula

$$T_m = \frac{\pi}{16} \int D^3$$

where f = allowable shearing stress.

Also show that the angle of twist (θ) is expressed by the formula

$$\theta = \frac{32\ T_m\ l}{\pi\ GD^4}$$

Determine the values T_m and θ for the case of a shaft 4 ins. in diameter and 10 feet in length when $f = 10{,}000$ pounds per square inch. and $G = 12{,}500{,}000$.

9. If a shaft is subjected to a bending moment (M) and a twisting moment (T), show that a twisting moment T_e where $T_e = M = + \sqrt{M^2 + T^2}$ will give the same stress in the shaft.

A steel tube of 10 ins. external diameter and 12 feet long is supported horizontally at the ends. At a point 4 feet from one end a bracket is fixed at right angles to the axis of the tube and supports at its end a weight of $3\frac{3}{4}$ tons, the distance between the centre of the tube and the weight being 24 ins. Find the thickness of the tube so that the stress may nowhere exceed 5 tons per square inch.

Section II.

10. Show that the tight and slack tensions T_1 and T_2 respectively, of a belt wrapped round a rotating pulley, are given by

$$T_1 - \frac{wa\ v^2}{g} = \left(T_2 - \frac{wav^2}{g}\right) \mathrm{E}^{u\theta}$$

The most efficient speed of a 10 in. × $\frac{1}{4}$ in. belt, weighing .0325 lbs. per cub. inch, is 80 feet, per second, the corresponding tight and slack tensions being in the ratio of 7 to 3. The coefficient of friction is 1/3. Find the an-

gle subtended at the centre of the pulley by the arc of contact. Also find the tight and slack tensions and the work transmitted.

11. State the conditions of equilibrium of a retaining wall.

A wall of rectangular section supports water at one side level with the top. How much of the wall can be cut away by a plane through the toe, if the distance of the centre of pressure at the base from the toe is 1-6 of the width of the base ?

With the section of the wall thus modified, show that its height must be double the width of the base, and also show that the tangents of the angles which the resultant pressures at the base make with the vertical are in the ratio of 4 to 3. The weight of the masonry per cub. ft. is twice that of the water.

12. Show that if a uniform plate be subjected to equal like principal stresses of intensity p, the stress on any plane is of intensity p and normal to that plane. Also show that if the stresses are unlike, the stress on a plane inclined at an angle θ to the plane of greatest principal stress, is still of intensity p, but inclined at an angle 2θ to the normal.

Apply your results to obtain a construction for the stress on aplane when the principal stresses are anything whatsoever.

13. Prove the approximate truth of the formula

$$\frac{d^2y}{dx^2} = \frac{M}{EI}$$

and apply your equations to the determination of the slope and deflection at any point of a cantilever of length 10 feet, (*a*) when loaded at its outer end with a weight of 1,000 pounds ; (*b*) when the same load is uniformly distributed.

14. At a point within a strained solid, the stress on one plane is a tension of 120 pounds per square inch, with an obliquity of 30°, and on a second plane a compression of 60 pounds, with an obliquity of 60°.

Find (1) the principal stresses ; (2) the planes of principal stress ; 3) the plane on which the stress is wholly tangential.

15. A beam of length $2\ l$, supported at each end and loaded uniformly with w pounds per foot run, is propped up at the centre, so that at that point the deflection is zero. Determine the load upon the prop.

16. In a continuous girder with one end fixed, obtain the relation

$$2M_1 + M_2 = -\frac{wl^2}{4}$$

for a uniformly distributed load.

A continuous girder of three spans, each of 104 feet, has one end abso-

lutely fixed. Determine the B.Ms. and reactions due to a uniformly distributed load of 104 tons, (1) on the span next fixture ; (2) on middle span ; (3) on remaining span.

Hence deduce the results for a uniformly distributed load of 1 ton per foot run covering the whole girder.

FOURTH YEAR.

THEORY OF STRUCTURES.

SATURDAY, APRIL 6TH :—9 A.M. TO 1 P.M.

(NOTE.—*Candidates may answer all or any of the questions.*)

1. A flat parabolic arch of span $2l$ is loaded by a weight W at a point dividing the span into segments p and q. Show that the horizontal thrust in the arch is

$$H = \frac{15}{32} W \frac{p^2 q^2}{kl^3}$$

having given that the intercepts y_1, y_2 of the linear arch upon the verticals drawn through the centre of the springing arc

$$y_1 = {}^2/_{15}\, k \frac{3p - 2q}{p}$$

$$y_2 = {}^2/_{15}\, k \frac{3q - 2p}{q}$$

where the maximum height of the linear arch is

$$z = \frac{6}{5} k.$$

Draw the linear arch for a flat parabolic arch with both ends fixed, of 22½ feet rise and 90 feet span, loaded at the centre and at one-quarter span with a weight of one ton. If both ends were hinged, what should be the weight at the centre and at the quarter span to produce the same horizontal thrust.

2. Show that a cable supporting a horizontal platform uniformly loaded, hangs in a parabola.

Determine the horizontal and pier tensions on a cable suspended from two piers 150 ft, and 70 ft. above the ground level, and carrying a horizontal platform loaded with one ton per linear foot. The distance between the piers is 200 ft. and the lowest point of the cable is 60 ft. above the ground level. The platform is carried by 19 suspenders equally spaced. Find the pull upon a suspender when a live load of one ton per linear foot covers one-half of the platform.

3. What is meant by *resilience*?

Determine the resilience in the case of a tension member of a circular section one inch in diameter and 20 feet long, when loaded with a weight of 3,500 pounds. ($E = 29{,}000{,}000$ in inches and pounds).

4. Obtain an expression for the distribution of shearing stress in the section of a beam in the form

$$q = \frac{S}{IZ_0} \int y z dy$$

and from your formula show that in the case of a rectangular section the ratio of maximum shear to mean shear is 1.5.

5. Obtain the general equations connecting the bending moment (M), the Shearing Force (S), and the load intensity (p) in the form

$$\frac{d^2 M}{dx^2} = \frac{S}{dx} = -p$$

and illustrate the meaning of the equations by reference to the case of a beam supported at both ends and loaded uniformly.

6. In the general case of Three Moments where the supports are on different levels, deduce the general relation

$$A \frac{Z_A}{l_A} + B \frac{Z_B}{l_B} - \frac{1}{6} M_A l_A - \frac{1}{6} M_B l_B$$
$$- \frac{1}{6} M(l_A + l_B) = EI\delta \left(\frac{1}{l_A} + \frac{1}{l_B} \right)$$

and from it obtain an equation connecting three consecutive bending moments for a beam loaded uniformly over each span and with the supports all on the same level.

7. Describe the different ways in which a pillar can bend according to the fixing of its ends and deduce Euler's formula for the strength of a pillar with rounded or pin ends in the form

$$W = \frac{\pi^2}{l^2} E I$$

Also write down the formulae for the other cases and state how they have been applied in practice.

8. Find a relation between Young's Modulus (E), the Modulus of Rigidity (C) and the Modulus of Compressibility (D), by considering the case of a unit cube under the action of a simple pull in a direction perpendicular to two parallel faces of the cube.

9. Obtain three equations for the principal stresses in an isotropic body of the form

$$e_x = \frac{p_x}{E} - \frac{p_y + p_z}{mE}$$

and deduce from your equations that

$$p_x = 2C \left\{ E_x + \frac{E_c}{m - 2} \cdot \right\}$$

10. In a thick cylinder exposed to an internal pressure P, show that at any point in the metal at radius r the radical stress (p) is connected to the hoop stress (q) by the equation

$$\frac{d}{dr}(pr) = q$$

and from this equation deduce a formula for proportioning the thickness of pipes exposed to internal pressure, having given that

$$p = a \left\{ m \frac{dp}{dr} + \frac{p}{r} \right\}$$

$$q = a \left\{ m \frac{p}{r} + \frac{dp}{dr} \right\}$$

where $\frac{dp}{dr}$ = radial strain at radius r

$\frac{p}{r}$ = circum, " " " r

and a is a constant depending on the material.

THEORY OF STRUCTURES.

TUESDAY, APRIL 9TH:—9 A. M. TO 1 P. M. AND FROM 2 TO 6 P. M.

(NOTE.—*Candidates may attempt all or any of the questions.*)

PART I.

1. The two back stays of a derrick crane are 30 feet long, and the angle between their horizontal traces is $2 \cos^{-1} \frac{2}{3}$. The height of the crane post is 24 ft., the length of the jib 45 ft., and the throw of the crane 28 ft. Load 5 tons. Determine the stresses in the several members, and the upward pull at the foot of each back stay, when the plane of the jib and post (*a*) bisects the angle between the horizontal traces of the backstay, and (*b*) passes through a back-stay.

2. The roof-trusses, Fig. 1, for a shop 80 ft. wide, are spaced 20 ft. apart, and have a rise of 30 ft. at the centre. Assuming a dead load of 15 pounds per square foot of covered area and a horizontal wind load of 50 pounds per square foot of projected vertical area, determine the stresses in all the members of the truss, and tabulate the maximum stresses for the members *AB*, *AC*, *BC*, *BD*, *CD*.

3. A dam 50 feet high, and of the section shown by Fig. 2, is built of masonry having a weight of 125 pounds per cubic foot. Determine the line of resistance, (*a*) when the reservoir is empty; (*b*) when full of water.

4. A three pin arch, the left Fig. 3, having a span of 180 feet and a rise of 40 feet, is loaded over one half its span with a uniformly distributed load of 1,200 pounds per linear foot of truss. Determine the stresses in the members cut by the planes *AB* and *CD*.

5. Determine all the stresses in the Petit Truss shown by Fig. 4, for a dead load of 600 pounds and a live load of 800 pounds per linear foot of truss. In determining the stresses in the verticals it may be assumed that 6,000 lbs. of the panel dead load is concentrated at each of the bottom chord panel points.

6. Design a stringer for a Pratt Truss bridge, 20 feet long and 3 ft. 9 ins. back to back of angles. The live load is 3,200 pounds per foot run of stringer, and the estimated weight of the dead load, including the weight of the stringer, is 400 pounds per foot run.

Part II.

7. A bridge, of 140 feet span and 28 feet rise at the centre, has two main trusses 17 feet apart, Figs. 5 and 6. The dead load is estimated at 2,600 pounds and the live load at 5,600 pounds per foot run of bridge. Determine the stresses on one of the trusses due to dead and live load when one third of the dead load is assumed to come from the top chord member.

8. Determine the stresses in the lower lateral system of the bridge of the preceding question for a wind load of 450 pounds per foot run. Also calculate the amount of reversion experienced in the lower main chords by this wind load and by a wind load of 150 pounds per foot run upon the top chord.

9. Design the section of the top chord member of a bridge, which

is 25 feet long and 20 inches deep, when the maximum compression stress which comes upon it is 500,000 pounds.

10. Design the pin plates and rivet connections for one end of the member in the preceding question. The pin may be assumed to be 6¼ inches in diameter.

11. Calculate the size of the pin for the upper joint in the batter brace of a bridge when subjected to the stresses shown by Fig. 7.

12. Determine the stresses in the members of the Frame, shown by Fig. 8, when a load of 2,500 pounds is applied at the joint *A*, and a load of 4,000 pounds is applied at the joint *B*.

FOURTH YEAR.

HYDRAULICS.

MONDAY, DECEMBER 17TH:—9 TO 1.

NOTE.—Six questions may be attempted in Part I and four questions in Part II.

PART I.

1. Enunciate and prove Bernouilli's Theorem and explain how the different elements affect the design of hydraulic motors.

Find the discharge in gallons per minute from a sharp-edged orifice of 2 sq. ins. sectional area under a constant head of 16 ft. measured from the centre of the orifice, the coefficient of discharge being .6.

2. What is meant by "energy lost in shock?"

Water flows at 5 ft. per second from a 12 in. pipe into a 24 in. and then again into a 12 in pipe. Determine the loss of head at the junctions. How will this loss be affected if the flow is doubled?

3. A reservoir, rectangular in plan and 10,000 sq. ft. in area, has on one side a 90° triangular notch 4 ft. deep. If the reservoir is full, in what time will the level sink 3 ft? ($c = .6$).

4. Give a brief account of Darcy's experiments on the frictional resistance of pipes, giving a statement of his results.

Find the amount of water in gallons per day passing between two reservoirs through a 24 in. pipe, 3 miles long, (*a*) when the mouth is full open, (*b*) when the mouth is restricted 75 per cent. by a conical

nozzle. The difference between the surface levels is 175 ft. and $f = .01$.

5. What population can be served at the rate of 20 gallons per head per day by means of a horizontal 3 in. branch 1,000 feet long, connected with a main at a point 20.289 ft. below the grade line, disregarding any possible loss at the junction? Coeff. of friction = .01.

6. A main 20,000 feet long connects two reservoirs and from a junction at the middle point two branches, each 10,000 ft. long, lead to other reservoirs. The water surface in the three upper reservoirs are respectively 600 ft., 400 ft. and 200 ft., above the water surface in the lowest reservoir. First, if the pipes are each 1 ft. in diameter, find the velocity of flow. Second, if the velocity of flow in each pipe is 5 ft. per second, find the diameters. ($f = .0064$).

7. Find the diameter of a rough pipe with a slope of 2 in. 1,000 which will give 50,000,000 gallons per 24 hours. Use Hagen's formula.

8. Deduce an expression for the flow through a rectangular notch, (*a*) neglecting side contractions, (*b*) taking side contractions into account.

9. Show how to deduce an expression for the flow in a canal across any transverse section of a water-way.

The Roquefavour Aqueduct, with faces in brickwork, is 2 m. wide at the bottom and 2.3 m. at the top, the total height being 2.4 m. The slope is 6 per 1,000. When the water runs 1.5 m deep, find the mean velocity of flow and the discharge, taking $C = 68.8$.

10. A stream of 40 sq. ins. sectional area delivers 112,500 gallons per hour normally against a flat vane, which moves away with a velocity of 12 ft. per second. Find the impulse, the useful work and the efficiency. What must be the speed of the vane to give a maximum effect? Find this effect.

11. A jet enters a bucket without shock and drives it at 10 ft. per second in a direction inclined at 60° to the direction of the impinging jet. If the lip is inclined at 30° to this direction, find the velocity of the jet before impact.

12. Give a brief sketch of the theory of the Impact Turbine.

13. In an outward flow tangential turbine $\gamma = 20°$; $\alpha = 140°$,

$6r_1 = 5r_2$; $Q = 1$ cub. ft. per second; $f_2 = f_4 = .1$. Find the tip angle at outlet, the frictional loss of energy, the energy carried away by the effluent water, the useful effect and the efficiency, the head being 100 feet.

14. A 12 in. Pelton wheel, making 997 revolutions per minute under a head of 170 ft., passes 11.39 cub. ft. of water per minute. The water enters without shock and leaves without energy in the direction of the wheel's motion. The actual H. P. is 2.92. Find the theoretical H. P. and the efficiency.

PART II.

15. Explain the action of the Venturi water meter and deduce a formula for the discharge through it in terms of the heads and sectional areas at the entrance and throat.

16. Describe, by aid of a sketch, the construction of one modern form of hydraulic accumulator.

17. Describe the construction and action of the Pelton wheel motor and show that its theoretical efficiency is the greatest possible. What causes diminish the efficiency and how are these minimised in the construction of the wheel.

18. Describe what improvements have been effected in the simple reaction wheel, or Barker's Mill, which have resulted in the modern types of turbines.

19. Describe the principle of action of the hydraulic ram and illustrate your answer by a sketch of one form of ram.

FOURTH YEAR.

HYDRAULICS.

THURSDAY, APRIL 11TH:—9 A.M. TO 1 P.M.

(NOTE.—Candidates may attempt *nine* questions).

1. Show how to determine the efficiency of a Borda turbine.

2. A curved vane subtends an angle of 90° at the point of intersection of the normals at the two edges and receives, without shock, a stream of water 2 ft. wide and $\frac{1}{2}$ in. thick, moving with a velocity of 20 ft., driving the vane in the same direction. The actual change

of direction of the water is through an angle of 45°. Find the speed of the vane, the velocity with which the water leaves the vane, the pressure on the vane and the efficiency (u = 8 feet per second).

3. An O. F. "jet" turbine ($\gamma = 90°$) of $5\frac{1}{11}$ ft. external diameter, passes 1890 cub. ft. of water per hour, under a head of 100 ft. The diameter of the outlet surface is twice that of the inlet and the water enters the turbine with a velocity (v_1) equal to the outlet peripheral velocity (u_2). Find the useful work done, the efficiency, and the number of revolutions per minute. Breadth of wheel uniform.

4. Describe a Poncelet water wheel and point out its advantages. Show that its theoretical maximum efficiency is

$$\cos^2 \gamma$$

and find the corresponding relations between v_1, u and V.

5. The total available fall to the bottom of a 24 ft. low breast wheel is 10 ft. and the point of admission is 4 ft. measured horizontally and 2 ft. measured vertically, from the sluice. The water issues horizontally from the sluice and enters the wheel with a velocity of 10 ft. Disregarding hydraulic resistance and taking $g = 32$, find the angle between the wheel's periphery and the direction of the inflowing water at the point of admission. Also find the work done by each cubic foot of water entering the wheel, when making $4\frac{3}{8}$ revols. per minute.

6. Shew that the hydraulic efficiency of a turbine is given by the expression

$$y = \frac{u_1 v'_w - u_2 v''_w}{g H}$$

where u_1 = velocity of wheel at entry

v'_w = whirling velocity of water at entry

and u_2, v''_w are similar quantities at exit.

H = effective head on the turbine.

If the wheel has a maximum efficiency and the vanes are radial at entrance, show that the expression reduces to

$$y = \frac{u_1^2}{g H}$$

7. In an I. F. turbine, the velocity of flow at outlet is 8 /s, the internal diameter is 9 ins., and the turbine makes 600 revolutions per minute. Find the outlet tip angle (β) so that the velocity of whirl may be nil.

8. In an A. F. impulse turbine, working under a head of 100 ft., the water enters at the mean radius at an angle of 23°16 with the vertical and leaves without velocity of whirl. The depth of the wheel is 1 ft., and the inlet velocity (v_1) and the velocity of the wheel's surface at the mean radius are equal. Find the lip angles at inlet and outlet and also the efficiency.

9. Assuming that the inlet velocity of whirl of a centrifugal pump is nil, deduce the result

$$2\,g\,H_a = u_2^{\,2} - V_2^{\,2} + 2\,v_s\,(v_w\,v_s'' - v_s) - v_d^{\,2} - 2\,gh_r$$

10. Find the H. P. required to drive a centrifugal pump, of 14 ft. diameter, with radial vanes, making 60 revolutions per minute and delivering 900,000 gallons per hour.

If $H = 30\frac{1}{4}$ ft., find the efficiency, the inlet velocity of whirl being nil.

11. A centrifugal pump delivers 20 cub. ft. per second at a speed of 225 revolutions per minute. The diameter of the discharge pipe = 20 ins.; the diameter of the wheel = 36 ins.; the depth of the wheel at outlet = $5\frac{1}{2}$ ins.; the number of blades = 6; blade thickness = $\frac{3}{8}$ in.; $\gamma = 90°$; cosec $\beta = 1.48$. Find the efficiency.

12. Show that in an hydraulic engine the speed is limited and can never rise above a value V, given by

$$V_o = \sqrt{\frac{2\,g}{w}\,\frac{p_o}{K}}$$

when

p_o = pressure at the accumulator;

w = weight of a unit volume of water;

g = constant of gravity;

K = sum of the coefficients of resistance referred to velocity V_o.

13. Deduce the relation $\frac{dp}{dr} = \frac{w}{g}\,\frac{v^2}{r}$ for the rotation of a fluid in a horizontal plane. Show how it may be applied to the case of a centrifugal pump.

Water fills and flows very slowly through a centrifugal pump into a volute of great diameter. Draw to scale a curve showing the pressure at different parts of the wheel and of the volute, the outer and inner diameters of the wheel—which makes 100 revolutions per

minute—being 2 ft., and 1 ft. respectively. The pressure at the inlet surface is 1 atmosphere.

14. Show that an hydraulic pressure engine is working at a maximum rate when one-third of the head is lost by friction.

FOURTH YEAR.

HYDRAULIC MACHINERY AND LABORATORY WORK.

MONDAY, APRIL 1ST:—9 A. M. TO 1 P. M.

Civil, Electrical and Mechanical Students may attempt *six* questions in Section I and *three* questions in Section II.

Mining Students may attempt *eight* questions in Section I.

(*Note.*—The answers to the questions should be, as far as possible, illustrated by good sketches, for which a proportion of marks will be awarded).

SECTION I.

HYDRAULIC MACHINERY.

1. Describe, by aid of sketches, the construction and action of a modern accumulator, such as is used in an hydraulic power supply station for a large city.

The ram of an accumulator in the Glasgow Power Station is 18 inches in diameter, and the pressure in the mains is 1,120 pounds per square inch. Determine the load upon the ram, allowing 4 % for friction of packing.

2. Describe, by aid of sketch, the principle of action of the Thomson jet pump.

3. Explain the principle of action of an hydraulic ram, and show what improvements have been effected in it of recent years, whereby an increased efficiency has been obtained.

In a test of a certain ram the total lift was 25 feet, and the head of water available was 5 feet. When the ram was at work it was found that of a supply of 600 gallons per hour 70 gallons found its way into the upper reservoir, the remainder being lost. Determine the useful H.P. exerted, and the efficiency.

4. Describe the construction and action of the hydraulic jack.

A 25 ton hydraulic jack, with a 4 in. ram and a $\frac{3}{4}$ in. plunger, is to lift a weight of 15 tons and is worked by a handle with a leverage of 20 to 1. If the efficiency of the jack is 80 % what force must be applied to the handle?

5. What are the main considerations which determine the choice of a turbine for a given water fall?

6. Describe the construction and mode of action of one form of impulse turbine, and show in what particulars it is an improvement upon the pressure turbine.

7. Classify the modes of regulation which have been used for pressure turbines, and state what are the advantages and disadvantages in each case.

8. Describe the main features of the hydraulic power station at Niagara Falls, and illustrate your answer by sketches of the essential features.

9. Describe one form of rotary hydraulic engine, draw a probable indicator diagram for the type you select, and explain the alteration in its form from a simple rectangular figure, by the combined action of the inertia of the moving parts, fluid friction and back pressure.

Under what circumstances would a reversal of stress occur in the engine?

SECTION II.

Hydraulic Laboratory.

10. Describe how you would proceed to measure the flow of a small stream, what instrument you would use, and the precautions which you would take to obtain an accurate measure of the flow.

11. In a rectangular canal, 5 feet in width, the mean height of the water above the crest of the weir was found to be 2.05 inches at the hook gauge. The velocity of approach was 2 feet per second. Determine the flow over the weir per minute. Coefficient of weir = 0.64.

12. Describe the phenomenon known as "inversion of the vane," and state, in general terms, the causes which produce the phenomenon.

13. Describe the apparatus used in the Laboratory for determining the impulsive effect of jets on vanes of different form.

A jet issues horizontally, under a head of 20 ft., from a $\frac{1}{2}$ in. orifice in the vertical face of a tank and strikes normally the centre of a vane at a distance of 48 ins., measured horizontally from the tank's face. By measurement, the vertical distance of the point of impact below the axis of the orifice is equal to 2.582 ins. Find the coefficient of velocity the coefficient of impact, and the direction of the jet's axis at the point

of impact, for a flat 12 in. circular vane, the balance weight being 3.015 lbs. The arm of the balance is 24 ins. and the vertical distance between the axes of the balance and the orifice is 36 ins.

Coeff. of discharge = 0.62.

14. Describe how you would proceed to make an efficiency test of a Pelton wheel motor.

In a test of the Pelton motor in the Laboratory, when fitted with a $\frac{5}{8}$ in. nozzle, the following results were obtained :—

Total revolutions = 14,500.

Time = 20 mins. 25 secs.

Quantity of water = 1,880 gallons.

Mean pressure = 90.6 pounds.

Mean difference of tensions on the band brake = 39.3 lbs.

Diameter of brake wheel = 18.04 inches.

Determine the brake and indicated H.P. and the efficiency.

SECOND YEAR.

SURVEYING.

THURSDAY, APRIL 11TH:—9 TO 12.

1. How closely can angles be measured with a surveyor's compass? Mention five tests that a compass must be able to pass before it can be considered to be in proper adjustment to do accurate work. Demonstrate why each of these is necessary.

2. Explain why it is necessary that a transit should be adjusted so that the line of sight will trace out a vertical plane when the telescope is revolved about its axis. State the adjustments necessary to bring the instrument into this condition.

3. Deduce formulae for the calculation of horizontal and vertical distances from stadia observations. (*a*) From a point in a field the following observations were taken to its corners.

Stadia Interval.	Horizontal Bearing.	Inclination
1.43	3° 20′	+ 14° 20′
1.17	87° 10′	− 1° 40′
1.24	193° 20′	− 16° 30′
1.03	280° 40′	+ 9° 10′

The stadia constant being 100 and $(f + c)$ being I, calculate the area of the field.

State the principal respect in which the transit is superior to the micrometers for distance measurement and the principal respect in which it is inferior to them for the same work.

4. In the overground survey of a mine having two shafts, the bearing of the line between them is found to be 219° 10′. One plumb line is let down each shaft and the following underground traverse is run between the the two bobs.

Line.	Horizontal Bearing.	Inclination.	Distance.
Shaft 1 to A	0° 00′	~ 17 45	200
A to B	75° 40′	~ 0 40	160
B shaft 2	63° 10′	~ 9 00	300

Calculate the horizontal bearing and horizontal length of a line joining the two bobs underground and state by how much the underground bearings must be changed in order that they shall read as if taken from the meridian of the overground survey.

5. The following are the level notes of a line which is to be graded to an elevation of 104.0 at sta. 0, of 110.0 at sta. 6, and of 107.0 at sta. 12 and rising and falling regularly between these points. Reduce the notes and calculate the cuts and fills by the grade rod method.

Station.	B. S.	H. I.	Intermediate.	F. S.	Elevation.
B. M.	9.20				107.62
0			9 4		
1			8.6		
2			11.5		
3			13.0		
T. P.	0.20			13.65	
4			4.0		
5			9.4		
6			0.3		
7			7.1		
8			13.5		
T. P.	10.17			2.84	
9			7.4		
10			.0		
			0.3		
12			10.7		
B M.				4.16	

6. What is the purpose of a vernier ? Why is it necessary on a transit ? What is the difference between a direct and a retrograde vernier. Draw a vernier that could be used on a transit with an eight inch cir.

cle graduated to every 20′ for the purpose of taking readings to the nearest 30″. Show this vernier reading 21ϑ° 17′ 30″ on a plotted arc of the transit circle.

7. The permanent value of the observed magnetic bearing of a line is affected by changes due to secular variation and local attraction. What are these? How can a bearing be taken so that it will be of permanent value in spite of such changes.

NOTE.—The calculations in questions 3 and 4 may be made graphically provided that the scale used is not less than 20 ft. to the inch and that some method of plotting angles more accurate than the use of a protractor is employed.

SURVEYING.

THIRD YEAR.

TUESDAY, APRIL 9TH:—9.

1. When running a 4° curve at Carillon, it was found that when the instrument reached sta. 21 the line ahead as far as sta. 30 could not be run in on account of intervening houses. The tangent bearing at sta. 21 was 58° 57½′. Calculate the bearing and length of the chord from sta. 21 to sta. 30. Also write out the field notes for putting in stas. 29, 28, 27, 26 and 25, the line being run backwards from sta. 30.

2. In running in an 8° curve of 40° central angle with standard transition ends, it was found that instrument hubs had to be put in at the B. C. at 140 ft. ahead of the B. C., at the beginning and ending of the circular curve at 90 ft. back from the E. C. and at the E. C. Write out the field notes for the curve.

3. What is the prismoidal formula? When will quantities calculated the prismoidal formula be equal to those calculated by the end area formula from the same data? Why is the prismoidal formula so little used in practice for the calculation of earthwork quantities? Calculate the content of the solid between the following sections by the prismoidal method.

Sta. 40	+ 0.4	+ 1.4	+ 3.0
	11.6		15.5
41	+ 3.2	+ 7.0	+ 9.6
	15.8		25.4

4. Examine the Y. level for adjustment in all particulars and state

by what parts will have to be moved to bring it into adjustment and in what directions?

Explain why you try each of these adjustments and demonstrate that when they are correct and the bubble is brought to the centre, the line of sight must be horizontal. What assumption must you make in this proof?

5. Examine the sextant for adjustment and state what parts have t be moved to bring it into adjustment and in what directions. Measure its index error. Explain how you would proceed to measure with the sextant the horizontal angle subtended at the drawing room window by the centre of the Secretary's door and the cupola of the Medical Building. When is the method of locating a point by the three point problem useless?

6. Derive a formula for the calculation of elevations from barometric observations. Explain in detail how you would proceed to determine the difference of elevation between "Bellevue" House at Carillon and the top of Mt. Rigaud, mentioning all precautions necessary to be taken to ensure a good result.

7. Show by sketch and explanation three methods of fixing points where soundings are being taken. Give a general description of a sounding machine suitable to deep sea work.

THIRD YEAR.

PRACTICAL ASTRONOMY.

SATURDAY, APRIL 13TH:—9 TO 12.

1. Find the local mean time corresponding to $19^h\ 20^m\ 30^s$ sidereal time, April 10th, 1901, in longitude 6^h east of Greenwich.

2. The Sun was observed at Montreal on January 20th, 1901, to have an hour angle of $3^h\ 35^m$ to the west. Find the mean time of the observation.

3. Find the sidereal time at which the Star *Arcturus* was exactly east of the observer in Montreal on February 1st, 1901.

4. Show by diagrams the quantities required to solve the following problems, and give the necessary formulae.

(*a*) *Vega* was observed on February 20th, 1901, in latitude 40° *N* at an altitude of 20° 30′ to find the time of the observation.

(*b*) *Fomalhaut* was observed at Montreal on March 25th, 1901, at $20^h\ 0^m\ 0^s$ sidereal time, find its azimuth.

5. Stars were observed as follows with an Astronomical transit, find the clock error.

	Lamp West.		Lamp East.	
$\delta =$	+ 2° 20′	+ 74° 35′	— 24° 52′	+ 67° 45′
$A =$	0.68	— 1.82	1.04	— 1.00
$B =$	0.73	3.28	0.37	2.44
$C =$	1.00	3.75	1.10	2.63
$a =$	14 40 48.91	14 51 06.41	14 57 46.64	15 13 27.71
$T =$	14 40 59.80	14 51 12.46	14 57 57.44	15 13 33.52

Inclination of axis = — 0.^{s}08.

6. Derive the formula from which to compute the effect of an error in azimuth of an astronomical transit, on the observed time of passage of a star.

FOURTH YEAR.

GEODESY.

Thursday, April 4th:—2 p. m.

1. Describe the use of the astronomical transit in the prime vertical for latitude determinations; the methods of eliminating instrumental errors, and obtain the necessary formulae for the reduction of the observations.

2. Describe generally how the figure of the earth may be determined (*a*) by astronomical and trigonometrical observations (*b*) by pendulum observations. What are the discrepancies to be expected in the data which are obtainable by each of these methods.

3. The following measurements of a base line were made

2453′ . 325 ± . 015
2453 . 333 ± . 020
2453 . 280 ± . 025

find the weighted mean and its probable error. (*a*) Suppose these to be the lengths of the parts of a base line measured in three sections, what is the probable error of the whole length 7259′. 938.

4. How would you ascertain if the spherical correction to a lens has been well made. (*a*) What are the precautions necessary in the mount-

ing of a lens? (*b*) Describe the two forms of eye-pieces used in telescopes, and state their relative advantages.

5. Describe the construction and use of a repeating circle.

6. Show that in the transit instrument

$$a = T + \Delta T + m + n \tan \Sigma + c \sec \Sigma \text{ where}$$
$$m = b \cos \phi + a \sin \phi \text{ and } n = b \sin \phi - a \cos \phi$$

7. Outline generally the method of computing differences of latitude, longitude and azimuth on the spheroid, giving the data necessary in each case.

8. Describe briefly the methods of precise levelling and note especially how these differ from those of ordinary levelling.

9. How do errors of inclination of horizontal axis and collimation affect azimuth observations made with a transit theodolite.

FIRST YEAR.

DESCRIPTIVE GEOMETRY.

TUESDAY, APRIL 16TH:—9 TO 12.

1. A right square prism 3 in. long, edge of end 1 in., rests on the H. P. One diagonal of end is horizontal and the long edges of the solid are at 50° to the H. P. and 25° to the V. P. Show the plan and elevation.

2. A right circular cylinder rests on the H. P. Its axis is at 60° to the H. P. and 20° to the V. P. Diameter of end 2 in. length $3\frac{1}{2}$ in. Show the plan and elevation.

3. A tetrahedron of $2\frac{1}{2}$ in. edge has one edge in the H. P. at an angle of 40° to XY. One of the faces adjacent to this edge is at 40° to the H. P. Show the plan and elevation.

4. A right circular cone has an angle of 60° at its apex. A section plane is inclined at 15° to the axis of the cone and cuts the axis at a point $\frac{1}{2}$ in. from the apex. Show the plan when the axis is vertical and true form of the section and develop the surfaces of the cone.

5. A right circular cone, base $2\frac{1}{2}$ in., altitude 3 in., rests on its base on the H. P. with its axis vertical. This is penetrated by a circular cylinder resting on the H. P., diameter $1\frac{1}{2}$ in. The axis of the cylinder is horizontal and parallel to the V. P. The axis of the cyl-

inder is $\frac{1}{4}$ in. distant from that of the cone and is $3\frac{1}{2}$ in. long. Show the plan and elevation of the solids with the lines of intersection.

6. Show the elevation of a screw thread of square section. Outside diameter 3 in. Pitch of thread 1 in.

SECOND YEAR.

DESCRIPTIVE GEOMETRY.

TUESDAY, APRIL 16TH :—9 TO 12.

1. The apex of a right cone meets the axis of a right cylinder, and the axis of the cone makes an angle of 20° with the axis of the cylinder. The diameter of the cylinder is 1.5″ and the apex angle of the cone 80°. Find a vertical projection of the line of penetration and its plan on a plane perpendicular to the axis of the cone. (*a*) Develope the cone, marking on it the line of penetration.

2. A right hexagonal prism, having faces 1″ wide by 3″ long is placed so that the base makes an angle of 45°, and one face an angle of 60° with the horizontal. Find the plan and the elevation on a plane making an angle of 60° with the base of the prism.

3. A cube of 1″ edge revolves about one of its solid diagonals, which is vertical. Find the surfaces of revolution.

4. A cone having an apex angle of 60° is cut by a plane meeting the axis $\frac{1}{2}$″ from the apex and making an angle of 15° with the axis. Find the asymptotes of the curve.

5. Three spheres, having diameters of 1″, $\frac{3}{4}$″ and $\frac{1}{2}$″ respectively, are so placed that the plan of their centres is an equilateral triangle of 1″ side. The side of this triangle which joins the centres of the two smaller spheres is parallel to the XY, and the surface of the largest sphere touches both projection planes. The centre of the $\frac{3}{4}$″ sphere is 1″ above the horizontal, and the centre of the $\frac{1}{2}$″ sphere is $\frac{1}{2}$″ above the horizontal. Find the traces of the plane which touches the upper surfaces of the three spheres, and find the point of contact between this plane and the $\frac{3}{4}$″ sphere.

6. Find the axometric projection of a skeleton cube of 4″ edge, made from scantling $\frac{1}{2}$″ square. Two of the axes of projection are inclined to the projection plane at 30° and 45° respectively.

THIRD YEAR.

PERSPECTIVE AND MAPPING.

TUESDAY, APRIL 16TH :—2 P.M.

1. Make a graphical demonstration of the truth of the two principal laws of perspective.

2. Draw a perspective from the plan given to you.

3. Determine the position and elevation of the points A and B from the ata given to you.

4. Taking the earth's radius as 4 inches, draw every tenth degree of latitude between 40° N. and 80° N., and every tenth degree of longitude between 60° W. and 120° W. (*a*) By de L'Orgna's projection, (*b*) by simple conic projection.

Mention the merits and faults of each system.

THIRD YEAR.

ELECTRO-MAGNETISM.

MONDAY, DECEMBER 17TH :—MORNING, 9 TO 12.

1. Explain fully the meaning of the following terms :—"Magnetizing force H," "Induction B," "Permeability μ."

2. Find an expression for the magnetic potential at any point P due to a closed circuit carrying a current I.

3. A wrought iron anchor ring, the B & H curve of which is given, has a mean diameter of 20 centimetres, sectional area, 5 square centimetres; find the number of ampere turns required to produce a total flux of 80,000 lines.

An air gap of 0.1 cm. length is cut in the ring. Find the increased number of ampere turns required to give the same flux.

4. A calibration coil 24 centimetres long, 2 square centimetres mean area, is wound with 300 turns and a search coil of 10 turns placed midway between its ends. If a current of 2.5 amperes is broken in this coil, what will be the total quantity of electricity that flows through a galvanometer connected to the search coil, the resistance of galvanometer and search coil being 400 ohms.

5. The armature of a two pole dynamo makes 1200 r.p.m., the volume of iron in the core being 25,000 cubic centimeters, maximum

magnetic induction, 8,000 lines. What is the rate of expenditure of energy by hysteresis? Hysteretic constant = .003.

6. A current of 2 amp res flows in a circuit having a co-efficient of self-induction of 2.2 henrys. What is the energy in ergs stored in the magnetic field?

7. How would you determine the constant of a ballistic galvanometer.

THIRD YEAR.

DIRECT CURRENT MACHINERY.

WEDNESDAY, APRIL 17TH:—MORNING 9 TO 12.

1. Derive the fundamental E. M. F. equation of the direct current generator.

2. Discuss the effect of armature reactions upon commutation and deduce an expression for the demagnetizing and cross magnetizing effect of the armature turns.

3 Enumerate and describe the tests you would make on the following pieces of apparatus to determine their more important characteristics: a shunt wound D. C. generator, an arc light generator anda compound wound motor.

4. Derive an expression for the electrical torque in motors in terms of armature current and induction. What are the different losses that take place in motors and what tests would you make to ascertain their value?

5. State the conditions for self excitation of a D. C. generator. Derive an expression for the critical speed of dynamos.

6. Sketch and describe current methods of coupling shunt, compound and series machines for incandescent and arc lighting.

7. A brake test on a motor gives the following readings: input 8,000 watts, T_1 40 lbs. T_2 2 lbs., diameter of brake wheel 14 inyches; speed 1,100. What is the efficiencat that load?

FOURTH YEAR.

ALTERNATING CURRENTS AND ALTERNATING CURRENT MACHINERY.

TUESDAY, APRIL 9TH:—MORNING 9 TO 12.

1. Given an anchor ring 12 in. outside diameter and 8 in. inside diameter of iron, of permeability 1000 wrapped with 300 turns of No. 16 B. and S. copper wire. Required the co-efficient of self-induction. After the application of an E. M. F. of 4 volts, required the time for the current to reach one-half of its final value. When the final value is reached, what is the energy stored in the magnetic field in ergs.

2. Derive an expression for the capacity and self-inductance per unit length of two parallel cylinders.

A transmission line consists of two No. 00 B. and S. copper wire. Inter-axial distance, thirty-six inches.

Required magnetic and capacity reactance per mile at 60 cycles.

3. Given two mutually inductive circuits in air. An harmonic E. M. F. is applied to one. Required the current in the other in terms of the impressed E. M. F. and constants of the circuits.

4. An induction motor developes 5 H. P. at an efficiency of 75 % and power factor 70%, voltage 500, frequency 60 cycles.

Required the capacity in micro-farads, with which the motor must be shunted to bring line current in phase with E. M. F.

5. Given an alternator, open circuit voltage 1200, armature resistance 0.4 ohms, synchronous reactance 2 ohms.

Required the current and terminal voltage when connected to a circuit of resistance 40 ohms and reactance 10 ohms.

6. The lines of a power transmission are of No. 00 B and S copper wire 36 inches apart and 20 miles long. At station No. 1, 10 miles from generating plant, is a load of a 1000 K.W., power factor 80 % and at end of line station No. 2, is a load of 2,000 K.W., power factor 85 %. The voltage at station No. 2 is 20,000. Required the voltage at station No. 1 and at generating plant, also power factor of the load on generating end.

7. A single phase alternator having an open circuit E.M.F. of E_0

armature resistance r_1 and synchronous reactance x_1 supplies current through a resistance r and reactance x to a synchronous motor of counter E.M.F. E_2, armature resistance r_2 and synchronous reactance x_2, derive an equation connecting E_0, r_1, x_1, r, x, E_2, r_2, x_2, and the power developed by the motor.

8. Enumerate and describe the tests you would make on the following pieces of apparatus to determine their more important characteristics.

An integrating wattmeter, a frequency indicator, a static transformer, a three-phase generator, a synchronous converter.

FOURTH YEAR.

ELECTRIC RAILWAYS.

THURSDAY, APRIL 18TH:—MORNING, 9 TO 12.

1. The maximum number of cars in a given section for a street railway system is 40, load factor 65%, average current per car, 25 amperes, centre of distribution, two miles from car house, (1) design feeder for 10% average drop, (2) by Kelvin's law, (3) by allowable temperature rise. Cost of copper 22c. per pound. Cost of power $40 per k. w. year on a 24 hour basis; interest rate 6%.

2. Make sketches indicating what you consider standard tract construction for small towns, for metropolitan service and for interurban service. The overhead trolley being used. Indicate proper return circuit construction for same conditions.

3. A car weighing ten tons is fited with two motors, each of which develops 2,600 inch-pounds armature torque. Find speed of car in miles per hour after 8 minutes on a 2% grade, Gear ratio 4.78; car wheel 33″ diameter; traction coefficient 10 lbs. per ton.

4. What data must be available in connection with a proposed electric road in order to properly design the motive power equipment.

5. In connection with the selection of apparatus for a modern power house, what considerations would guide in regard to boilers, engines, dynamos, switchboards and accessories.

6. Discuss the use of synchronous converters for power distribution. Deduce the ratio of D. C. and A. C. E.M.F.'s and currents in single, two and three phase converters.

FOURTH YEAR.

MECHANICAL ENGINEERING.

(*Course for Civil, Electrical and Mining Students.*)

THURSDAY, DECEMBER 20:—AFTERNOON, 2 TO 5.

(*Eight questions may be attempted.*)

1. Sketch and describe the arrangement of the various parts of a locomotive boiler.

2. In testing the relative value of two kinds of coal, the following results were obtained during a week's run of a certain boiler plant:

	Coal "A."	Coal "B."
Total water evaporated, lbs.	459,000	475,000
Average steam pressure, lbs. per sq. in.	150	150
Temperature of steam, deg. Fah.	358	358
" of feed, "	85	105
Total coal burnt, lbs.	53,300	75,000
Cost of coal per 2,240 lbs.	$5.00	$4.00

The latent heat of steam at 358 deg. is 855 B.T.U.

Compare the cost per 1,000 lbs. of steam, if the evaporation had been from and at 212 deg. in each case. The latent heat of steam at 212 deg. is 966 B.T.U.

3. Give some account of the precautions necessary to prevent internal corrosion of boilers, (*a*) when under steam, (*b*) when not in use.

4. Enumerate the chief causes of loss of heat in the working of steam boilers, and state roughly their relative importance.

5. What is meant by the "diagram factor" for a steam engine? A simple non-condensing steam engine has a cylinder 12½" dia. by 12" stroke. It runs at 260 revolutions per minute. The boiler pressure is 100 lbs. per square inch by gauge, and the cut-off in the cylinder is at half stroke. What I.H.P. would you expect from this engine, supposing the back pressure were 3½ lbs. per square inch, by guage, taking a diagram factor of 0.75?

$$\left(\text{Given } \frac{1+\log_e r}{r} = 0.846\right)$$

6. Discuss briefly the economical and mechanical advantages of

steam engines in which the expansion is carried out in two or more stages.

7. Give some account of the methods of making various measurements required in testing a steam engine for steam consumption and for mechanical efficiency.

8. A locomotive has cylinders 19″ dia. by 26″ stroke; the working pressure is 175 lbs per square inch; the driving wheels are 85″ dia. What will be the probable maximum tractive force at starting, and about what mean tractive force would you expect from this engine when running at a low speed, assuming that there is sufficient weight for adhesion?

9. A train running 60 miles per hour on the level was found to have a draw-bar pull between the tender and leading car of 3,360 lbs. Assuming that the air resistance and internal friction of the locomotive each absorbed 250 H. P., find the mechanical efficiency of the locomotive.

10. Make a sketch of the form of indicator diagram obtained from a four-cycle gas engine, and describe the various operations in the working cycle.

11. A gas-producer, having an efficiency of 82 per cent., supplies gas to an engine whose consumption is 70 cubic feet per I.H.P. per hour. The gas is worth 155,000 B.T.U. per thonsand cubic feet. What proportion of the energy available in the fuel supplied to the gas-producer is turned into work in the engine cylinder? (J=778.)

FOURTH YEAR.

MECHANICAL ENGINEERING.

TUESDAY, APRIL 9TH:—MORNING, 9 TO 12.

(*Eight questions may be attempted. Figures give proportional marks*).

1. Explain how you would proceed to determine the leading particulars (grate surface, heating surface, etc.) for a boiler required to evaporate a given amount of water per hour. What circumstances would influence you in your choice of the type of boiler? (20)

2. Find the sizes of cylinders and stroke of a triple expansion

engine to indicate 3000 *IHP* at 550 ft. per minute piston speed and 70 revolutions per minute. The cut off in the *HP* cylinder is to be 0.6, the working pressure is 180 lbs. per square inch, and the referred mean pressure may be taken at 35 lbs. per square inch. The total rate of expansion is 10. (25)

3. A compound locomotive has two *HP* cylinders each 14″ dia. and two *L.P.* cylinders each 21″ dia. The stroke is 24″. The dia. of the driving wheels is 63″, the working pressure is 200 lbs. per square inch by gauge, and the cut off in the *HP* cylinder when running 30 miles per hour is 0.35. Allowing for a back pressure in the *LP* cylinder of 5 lbs. per square inch by gauge, find the probable *IHP*, supposing the diagram factor to be 0.45. If the mechanical efficiency is 0.8, find the mean tractive force at the speed named. (Log_e 6.43 = 1.861). (25)

4. A steamer is fitted with quadruple expansion engines having a feed heater taking steam from the LP receiver and mixing it with the feed water. The work done in the LP cylinder is, therefore, less when the feed heater is working than with the feed heater disconnected. Find the coal burnt per IHP per hour in the two cases, assuming that each lb. of coal gives 9,000 BTU to the water in the boilers, and having given

	Heater	No heater
Steam used per hour lbs.	140,000	140,000
Working pressure lbs. abs.	215	215
Feed temperature (t_2)	200°	80°
IHP	9,700	10,000
heat o'aTt of steam ($L_1 + h_1$) (at 215 lbs.)	1,200	1,200
Heat of liquid. (h_2) (corr. to feed temp.)	169	48

(25)

5. Give a brief account of either :—

(*a*) The construction and working of the *two-cycle* form of gasoline engine ;

or (*b*) Recent improvements in internal combustion engines. (20)

6. Explain clearly the action of a gas producer of the Dowson type, using anthracite as fuel. How does an engine designed for using producer gas differ from one fitted for the use of illuminating gas ?

7. Describe the action of an automatic fly-wheel governor, and sketch Zeuner diagrams, showing the change in the steam distribution effected by such a governor. (20)

8. By the aid of a valve diagram show what would be the approximate shape of an indicator diagram taken when the indicator barrel is moved by the valve stem. For what purpose are such diagrams taken? (20)

9. Describe briefly with sketches the action of a Laval steam turbine, and discuss the advantages and disadvantages of this type. (20)

10. Explain one method of estimating the power required for a ship of high speed. (20)

FOURTH YEAR.

MECHANICAL ENGINEERING LABORATORY WORK.

FRIDAY, APRIL 12TH, 1901:—9 TO 12 A.M.

(*Figures give proportional marks. Seven questions may be attempted.*)

1. Explain what is meant by the viscosity of an oil. How does viscosity enable one to judge of the suitability of an oil for lubricating purposes? Describe a method of determining the relative viscosity of a lubricating oil. (10)

2. Describe the method of testing indicator springs, and show how to apply the necessary correction to diagrams taken with them. (10)

3. Draw up a trial sheet for the test of an injector, describe the arrangement of the apparatus, and discuss the chief sources of error in the experiment. (10)

4. The following readings were taken during a trial with the belt-tester at McGill University:—

Effective load on brake 50 lbs.
" dia. of brake wheel 30.1 inches.
" load on spring balance 103 lbs.
Length of lever (longer arm) 47 inches.
" " (shorter arm) 6.625 inches.
Revolutions per minute 128.5.
T. M. shown by dynamometer 66.5 lbs. feet.

Find the efficiency of the transmission and the coefficient of friction between the belt and pulley ($e = 2.718$). (15)

5. In a test of a Crossley Gas Engine (four-cycle) the following numbers were obtained:—

Pressure of gas at meter	14.86 lbs. per sq. inch.
Temp. " "	58° Fah.
$K_p - K_v$ for coal gas	144.1
Gas per hour by meter	279.75 cubic feet.
No. of ignitions per hour	4270
Assumed temperature of mixture at beginning of compression	145° Fah.
Pressure of mixture at beginning of compression	13.8 lbs. per sq. inch.
Volume swept through by piston	0.591 cu. ft.
$K_p - K_v$ for air	53.2

Find the ratio $\frac{\text{air}}{\text{gas}}$ by volume and by weight. (15)

6. The analysis of the flue gas during a boiler trial gave the following results by volume :—

CO_2	13.08 %	Relative weight	22
CO	0.83	" "	14
O	4.84	" "	16
N	81.25	" "	14

Find the percentage composition by weight, and the air used per lb. of coal, supposing the coal contains 81 % of carbon. (15)

7. Determine the efficiency of a Green's Economiser, having given the following result of a test :—

Feed water passing through economiser, per lb. of coal burnt in boilers	8.61 lbs.
Weight of flue gases entering economiser, per lb. coal burnt	23.0 lbs.
Temperature of do	702° F
Weight of flue gases leaving economiser, per lb. coal burnt	25.8 lbs.
Temperature of do	406° F
Temperature of air in boiler room	70° F
K_p for flue gases	0.413 B.T.U.
K_p for air	0.237 "
Temp. of feed water entering economiser	50° F
" " " leaving "	247° F

(15)

8. A large Worthington pumping engine was tested with the following results :—

Total IHP of steam cylinders	184.6
" feed water measured into boiler	74,079 lbs.
" steam used in calorimeter tests	360 "

Total steam used by feed pump	1,099 lbs.
" water drained from main separator	442 "
Mean dryness of steam supplied to engine	0.994
Temperature of do	340° F
" of exhaust steam	218° F
Duration of trial	9h 46m.
Latent heat of steam at 340°	875 B.T.U.
Heat of liquid at 340°	311 "
" " at 218°	187 "

Find the B.T.U. expended per IHP per minute. (15)

9. A two-stage air compressor, with intercooler, indicated 23.8 HP and delivered 2,389 lbs. of air, at 75.9 lbs. per sq. inch absolute and 182° F, during a test lasting 3 hours. The air entered the intercooler at 173° and left it at 79.6°. The intercooler used 1,177 lbs. of water which rose 43.3° in temperature. The temperature of air in compressor suction pipe was 67°. The barometric pressure was 14.82. lbs. per sq. inch.

Compare the performance of this compressor with that of an ideal machine having isothermal compression, and find K_p for the air in the intercooler, neglecting radiation. Vol. of one lb. air at 60° and 14.7 = 13.15 cubic feet, $\log_e 5.12 = 1.633$. (15)

SECOND YEAR.

MECHANICAL DRAWING.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 1.

The accompanying print shows a locomotive connecting-rod end.

The upper view is a side elevation, the upper half of which shows an outside view and the lower a sectional elevation along the centre line of the bolts.

The lower view shows a plan, the upper half being a sectional plan and the lower an outside view.

You are required to draw three views as follows:—

1. A side elevation which is wholly an outside view.

2. An end elevation looking from left to right, *i.e.*, as you would see the object when facing the broken end.

3. A complete sectional plan.

Scale, half-size.

Dotted lines representing hidden parts are not required to be drawn, and no figured dimensions need be inserted.

The views on the print are not necessarily to scale, but the dimensions are all correctly given by the figures.

You should omit the cotter shown in the ends of the larger bolt.

No. 1 should be a completion of the outside view of the side elevation as shown.

No. 2 is to be an entirely new view which you are to show to the left of 1. The dimensions for it you will obtain by projection from 1, and from the figured dimensions on the plan as given in the print. It should show an outside view except the broken end of the rod which should be marked by sectioning lines showing steel (dotted lines.)

No. 3 is to be a completion of the sectional plan as shown on the print.

The views must be completed in the order given, as very little credit will be given for 3 unless 2 is done.

Sectioning lines may be drawn free hand in pencil to save time.

No extra marks will be allowed for inking in unless all the views are complete in pencil. If you do any inking complete the view started before starting to ink the next.

FOURTH YEAR.

ELECTRIC LIGHTING.

MONDAY, APRIL 15TH:—MORNING, 9 TO 12.

1. A Line consisting of 8 No.0 B. & S. bare copper wires is dead ended at a pole guyed. These wires are carried on two cross arms. Distance between cross arms, 18 inches. Distances apart of poles, 100 feet. Sag of wire, 12 inches. Find the strain in the guy wire set at 45 degrees. No.0 wire weighs 320 lbs. per 1,000 feet.

2. It is desired to use 220 volt units in a generating plant supplying current to an Edison 3-wire net work, voltage to neutral 110. Discuss fully methods by which potential to neutral from either leg may be kept constant as load becomes unbalanced.

3. Three feeders connecting to the central station, the feeding points 1, 2 and 3 of a straight system of mains, have lengths respectively 5,620, 4,000 and 7,210 feet, the distances along the distributing main from feeding point 1 to 2, is 4,000 feet and from 2 to 3, 6,000 feet. The total load is 250 amperes distributed in 10 points at equal distances and equal loads. Find the current in the feeders, the difference of potential at the feeding points and drop of potential in

the mains. Size of feeders and mains, No.00 B. & S. Station voltage 220.

4. Describe methods for controlling and indicating receiver pressure at generating end of a D. C. and an A. C. transmission.

5. State the principal condition required for the successful parallel operation of alternators. Make sketches showing the arrangement of synchronizing device for two and three phase machinery.

6. Describe methods commonly used for the detection and location of faults in electric light mains.

7. Compare the relative amount of copper in single, two and three phase transmission lines on a basis of same maximum voltage.

THIRD YEAR.

MECHANICAL DRAWING.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 1.

The accompanying print shows a gas engine piston and connecting-rod end; the latter being shown detached from the pin on which it works. In the drawing you are required to show them connected together. No credit will be given for a separated drawing of the connecting-rod end nor for a separate enlarged view of the piston rings.

Three views are required as follows:—

(*a*) A sectional plan taken through the axis of the piston, but in which neither the connecting-rod end nor the pin on which it works is to be shown in section;

(*b*) A side elevation, in which the upper half is to show a section taken through the axis of the cylinder, and the lower half an outside view of the piston;

(*c*) An end elevation looking into the open end of the piston.

Scale, half-size.

Dotted lines representing hidden parts are not required to be drawn and no figured dimensions need be inserted.

The views on the print are not necessarily to scale, you are expected to correct all errors and supply all omissions that you notice.

The work should be finished in the following order:—

1. The outlines of the three views, in pencil.
2. Put in proper sectioning freehand, in pencil.
3. Ink in, finishing one view before starting the next.

THIRD YEAR.

MACHINE DESIGN.

APRIL 1ST:—9 TO 12.

All sketches to be drawn freehand.

The figures after the questions show proportionate marks awarded.

1. A steel tie rod $\frac{1}{2}$ inch dia. sustains a load of 4,000 lbs. If the rod be four feet long find the stress and total elongation ($E = 30 \times 10^6$). (10)

2. Find the safe load a wrought iron beam, 4 inches square and 10 feet long between supports, would bear at its centre.

(*a*) When the plane of bending is parallel to one side.

(*b*) " " " " " " to a diagonal.

($f = 10{,}000$). (15)

3. A fly-wheel weighing 40 tons is supported by a mild steel shaft. The shaft rests on two main bearings 12 ft. apart. The fly-wheel is 4 ft. from one of the bearings. Find the diameter of the shaft which will safely carry the wheel ($f = 11{,}000$). (15)

4. A line of shafting is driven by a belt passing over a pulley 30 inches in diameter.

(*a*) Find the size of shaft (steel) to transmit 20 horse-power. 100 r. p. m. $f = 11{,}000$.

(*b*) If the pull on the tight side of the belt is twice that on the slack side find the width of belt to drive pulley (safe stress per inch width = 100. (15)

5. What diameter would you make the cranked shaft of a horizontal single cylinder engine having the following dimensions :—

Diameter of cylinder = $10\frac{1}{2}''$

Stroke = $12''$

The connecting rod is six cranks long.

Distance from centre to centre of bearings = 4 ft.

Initial steam pressure 125 lbs abs. (15)

6. If the distance from centre to centre of crank webs be $9\frac{1}{2}$ inches in the engine of question 5 and the crank webs be 3 inches wide, find

(*a*) The greatest depth of web.

(*b*) The diameter of crank pin. (20)

7. Design a double riveted double butt joint for a boiler 10 ft. dia.

Working pressure = 200 lbs.

f_t 12,000 $\frac{f_s}{f_t} = 0.8$.

Approximate efficiency = 77 p.c. (15)

8. Sketch a bolt with a square head and hexagon nut. Supposing the bolt to be 1 inch in diameter mark the usual dimensions of the nut and the bolt head.

Make a sketch of a stud, describe how it is screwed into place, and state some circumstances under which it is used in preference to a bolt. (10)

9. Show by sketches two methods by which a cotter may be prevented from slacking back and two methods of connecting together the separate lengths of a line of shafting. (10)

FOURTH YEAR.

MACHINE DESIGN, I.

TUESDAY, APRIL 2ND:—MORNING, 9 TO 12.

(Figures give proportional marks. Seven questions may be attempted).

1. The steam drum of a boiler has double riveted double butt joints of the following dimensions:—

Thickness of plate	$\frac{3}{4}$ inch.
Diameter of rivets	15-16 inch.
Pitch of rivets	4 inches.

Mild steel plates and rivets.

The drum is 3′ 6″ mean diameter. Find the percentage strength of joint and the allowable working pressure on the boiler. Take the ratio of shearing to tensile stress as 23-28, and the allowable working stress in tension as 10,000 lbs. per square inch.

The drum has hemispherical ends of mild steel. What thickness should these be, allowing the same working stress? (20)

2. The counter-shaft of an air compressor has to transmit 60 H.P. at 250 R.P.M. The pinion upon it is 10″ diameter of pitch circle and is midway between two bearings, which are 2′ 6″ apart, centre to centre. Find the twisting and bending moments on the shaft and its diameter, taking a working stress of 9,000 pounds per square inch. (20)

3. The above shaft is driven by a belt running on a pulley 30 inches diar. Find the tensions on the tight and slack sides of this belt, when running, if the belt is just on the point of slipping.

Take $\mu = 0.3$, $\varepsilon = 2.718$, $\theta = \pi$. (15)

4. The frame of an hydraulic riveter is of hollow rectangular cross-section, and is to withstand a bending moment of 6,000,000 inch pounds. The

outside dimensions are 48″ × 24″ and the thickness of metal is 2″. Find the maximum stress due to bending. (25)

5. Obtain an expression for the maximum tension in a stretched wire where the sag is small in proportion to the span.

A wire rope weighs 0.6 lbs. per foot. Find the sag on a span of 300 feet if the maximum tension is not to exceed 7,000 lbs. (15)

6. Sketch a double throw built up crank shaft of the marine type. The aftermost web of a shaft of this kind is 8 inches thick (measuring parallel to the axis of the shaft). Find its width, supposing that it has to transmit the twisting moment of a set of three crank triple engines indicating altogether 1,500 H.P. at 85 R.P.M. Assume that the maximum T.M., due to the two forward engines, is equal to the mean T.M. of the whole set. The stroke is 48″ and the maximum load on the after piston is 100,000 lbs. Working stress, 6,000 lbs. per square inch. (25)

7. Investigate an expression for the stress due to bending caused by inertia in the coupling rod of a locomotive. Such a rod is of rectangular section, 7′ 6″ long between centres, and $1\frac{3}{4}$″ thick. The cranks are 11″ throw, and the driving wheels are 66″ dia. Find the depth of the rod if the bending stress is not to exceed 9,000 lbs. per square inch while the engine is running 60 miles per hour. Weight of material 0.3 lbs. per cubic inch. (20)

8. Make sketches showing three different forms of piston packing.

Find an expression giving the ratio between the initial and final radii of curvature at any point of a cast iron spring ring, assumed to be originally circular, and then bent by a uniform known external pressure, take the thickness as being .04 of original radius of curvature. (20)

9. Sketch and describe the construction of some one form of metallic piston rod packing. (20)

10. A pair of skew wheels connect shafts, making an angle of 30° in plan. The shortest distance between the shafts is 12 inches. The velocity ratio is to be 3.1. The smaller wheel has its teeth parallel to its axis. Explain how to find the relative sliding velocity of the teeth, and determine the diameters of the wheels. (Cos 30° = 0.866). (20)

11. Give some account of the considerations governing the conditions of testing a model, when it is desired to determine the safety of a full size structure or machine. Compare the rates of revolution at which two similar discs or wheels can be safely run if one is n times the linear dimensions of the other, and the same intensity of stress is to be applied in each of the two wheels. (25)

FOURTH YEAR.

MACHINE DESIGN, II.

WEDNESDAY, APRIL 10TH: 9 A. M. TO 1 P. M.

1. It is desired to drive the air compressor in the thermodynamic laboratory off a counter-shaft, gearing down $3\frac{1}{2}$ to 1. The maximum wisting moment on the compressor shaft is that due to 40 lbs., receiver pressure on a 17″ x 15″ cyl. The arrangement desired, as well as the actual dimensions of the compressor, are shown on the sketch.

The belt-pulley should not be less than 30″ dia. The pinion should not be less than 10″ dia.

Find width of belt (double) to drive compressor and diameter of 2nd motion shaft.

Design the spur wheels and draw 1 tooth (full size).

Make a pencil drawing ($\frac{1}{4}$ size) of the brackets and bearings for the shaft. Cap for bearing to be fastened on by two bolts.

THIRD YEAR.

THERMODYNAMICS.

APRIL 4TH, 1901 :—9 TO 12 A.M.

Only ten questions to be answered, of which the Mining and Civil students must answer two from section B and the Mechanical and Electrical students three from section. B.

A

1. Describe the improvements made in the steam engine by any three of the following men :—Savery, Newcomen, Watt, Hornblower. Make sketches where necessary.

2. A pound of ice at a temperature of 0°F is converted into steam at atmospheric pressure. Describe fully the change that take place during the operation, giving approximately the quantities of heat necessary to produce such changes.

3. Show that $K_v = K_p - c$.
Given $K_p = 0{\cdot}2375$ expressed in *B.T.U.* Find K_v — for air.

4. Air expands according to the law PV^n = constant.

Find expressions showing the work done by one pound expanding from volume V_1 to volume V_2.

(*a*) When $n = 1.4$

(*b*) When $n = 1$

5. Describe Carnot's cycle with air as a working substance and find the proper place at which to stop the third operation.

Find the efficiency of this cycle.

6. A motor receives air from a main, temp. 60°F, press. 100 lbs. per sqr. inch abs. The air expands adiabatically in the motor. Find the pressure of exhaust if the exhaust temperature is 10°Fahr.

Find the work done per pound of air.

7. In question 6, to what temperature would it be necessary to preheat the air before admission to motor so that expansion might take place down to 20 lbs. per sqr. inch absolute without the temperature falling below 10°F?

How much heat would be supplied to each pound of air?

Find the work done per pound of air.

8. Dry steam is admitted to a cylinder and expands according to the law $PV^{1.135}$ = constant, doing work on a piston.

The pressure at the beginning of expansion is 100 lbs. per sqr. inch abs.

The pressure at the end of expansion is 20 lbs. per sqr. inch abs.

The exhaust pressure is 15 lbs. per sqr. inch abs. and there is no compression.

Find :—

(*a*) The dryness of the steam at end of expansion.

(*b*) The work done per pound of steam.

(*c*) The efficiency.

The volume of 1 lb. steam at 100 lbs. pressure is 4.33 cu. ft.

" " " " 20 " 19.7

H at 100 lbs. = 1181.4.

9. A steam engine cuts off at $\frac{1}{4}$ stroke. Expansion proceeds according to the law PV = constant. Exhaust takes place at atmospheric pressure (15 lbs).

The initial steam pressure is 100 lbs. per sqr. inch abs.

There is no compression.

Find the mean effective pressure acting on the piston during the stroke.

If the cylinder be 10½ inches dia., stroke 12 inches and the revolutions 300 r. p. m.; the engine single cylinder and double acting find the *I. H. P.*

B

Mechanical and Electrical Engineering students must attempt three of the following:

Civil and Mining Engineering students must attempt two of the following:

10. Find the dryness of steam from the following readings taken on a throttling calorimeter.

Pressure in steam pipe = 100 lbs. per sqr. inch abs.
H at 100 lbs. pressure = 1181.4.
h " " = 298.3.
Pressure in calorimeter = atmospheric.
Temp. in calorimeter = 220°F.
H at atmospheric pressure = 1146.4.

11. How would you proceed to determine the consumption and mechanical efficiency of a steam engine.

12. Describe fully how you would proceed to get the valve setting of such an engine as the marine experimental in the Thermodynamic laboratory.

13. Describe an experiment to determine the latent heat of steam.

FOURTH YEAR.

THERMODYNAMICS.

Electrical Engineering Stuaents only.

TUESDAY, DEC. 18TH:—MORNING, 9 TO 12.

(Not more than seven questions to be attempted.)

1. Show that $K_v = K_p - c$ for a perfect gas.

A certain gas was found to have a specific heat at constant pressure of 361.3 foot-pounds per pound. Its specific heat at constant volume was 264.5. What is the volume of one pound of this gas at one atmosphere pressure and 60 deg. Fah.?

2. Find an expression for the work done by a gas during isothermal expansion.

What H. P. is required by an air compressor working isothermally and discharging air into a reservoir at a constant pressure of 7 atmospheres? The compressor draws 100 cubic feet of air from the atmosphere per minute at a temperature of 60 deg. Fah. The volume of one pound of this air is 13.2 cubic feet. ($\text{Log}_e 7 = 1.946$.)

3. A steam engine uses steam non expansively, and takes steam of pressure P_1; this is condensed at a pressure P. Find an expression for the efficiency of the process.

4. Describe carefully the Clausius Cycle for a steam engine, and point out how this cycle fails in reversibility.

5. Define Entropy. Calculate the increase of entropy of one pound of water when heated from 520 deg. abs. Fah. to 760 deg. abs. Find the further increase in entropy if the water is completely evaporated at the higher temperature (L at 760° = 904.6, $\log_e 1.46 = 0.3784$.)

6. Describe the working cycle of an ammonia refrigerating machine. Define the "coefficient of performance" of such a machine, and show that this coefficient is greater the less the range of temperature in the machine.

7. Obtain the adibatic equation

$$\frac{q_2 L_2}{\tau_2} = \frac{q_1 L_1}{\tau_1} + \log_e \frac{\tau_1}{\tau_2}$$

Find how much of a pound of water will be evaporated if expanded adiabatically from 200 lbs. per square inch abs. to 20 lbs. per square inch abs., having given:

Pressure.	Temperature.	Latent heat.
200	381.7°F.	843.8
20	227.9	954.6

$\log_e 1.223 = 0.200$

8. Explain how to draw the temperature-entropy diagram for a steam engine, having given the indicator diagram and the dryness at every point of the stroke.

9. Show how to find the weight of air discharged from an orifice assuming that the difference of pressure is small.

FOURTH YEAR.

THERMODYNAMICS.

THURSDAY, APRIL 4TH, 1901—MORNING 9 TO 12.

(*Any eight questions may be attempted. Figures give proportional marks.*)

1. The thermal efficiency of actual heat engines in practice rarely exceeds 25 %. Explain exactly what this statement means. Do you look upon a thermal efficiency of 25 % as being a good or a poor result; give reasons for your opinion. (20)

2. State Boyle's Law. Explain how it follows from the Kinetic theory of gases. (20)

3. Obtain an expression for the specific heat at constant pressure of a mixture of different gases.

A gas engine uses (by weight) 18 parts of air ($K_v = 0{\cdot}169$) and one part of gas ($K_v = 3{\cdot}4$) what is the value of K_v for the mixture before ignition? (20)

4. A perfect gas is compressed, the relation between pressure and volume being given by

$$PV^n = \text{constant}$$

Show how to calculate the work of compression and the temperature of the gas at any point of the compression. In a single stage air compressor ($n = 1{\cdot}3$) the air enters at 1 atmosphere and 62° F. After compression to 7 atmospheres the air is cooled at constant pressure to its original temperature. Find the heat removed per lb. of air in this cooling process ($K_p = 0{\cdot}2375$ *B T U.*) (25)

$$(\log_{10} 7 = 0\ 8451,\ \log_{10} 2{\cdot}33 = 0{\cdot}3673)$$

5. Heat is expended in converting a quantity of water into steam of a temperature higher than the temperature f evaporation. Explain clearly, by the aid of a table or diagram the various ways in which the heat has been used during the operation. (20)

6. Obtain an expression for the work done per pound of working steam in an engine using the Rankine or Clausius cycle.

A marine engine using 142·7 lbs. of dry steam per minute gave 645 I.H.P. The temperature at the stop valve was 373° F. and in the exhaust pipe 90° F. Compare the actual performance of this engine with that of an ideal engine working between the same limits of tem-

perature on the Rankine cycle. (Latent heat of steam at 373° = 850·2 *B T U*) (log 1.51 = 0.412.) (25)

7. Show how to draw a temperature—entropy chart for water and steam. An ideal engine works with the Rankine cycle for superheated steam. Show how to determine graphically the wetness or superheat of the steam at any point of the expansion. (25)

8. Describe the cycle of a refrigerating machine using a liquid and its vapour as working substance. Show that in a reversible refrigerating machine the smaller the range of temperature, the better is the performance of the machine. (25)

9. Obtain an expression for the maximum weight of gas discharged from an orifice per square foot of effective area, assuming that no heat enters or leaves the gas during the process of discharge. (30)

10. Give a brief account of Callendar and Nicolson's method of estimating the cyclical condensation in a steam engine cylinder, the mean temperature of each portion of the cylinder wall being known and the mean indicator diagram being given. (30)

11. Having given the indicator diagram of a gas engine, explain how to draw the corresponding temperature—entropy diagram, obtaining the formulae necessary for the calculation. (30)

THIRD YEAR.

DYNAMICS OF MACHINERY.

APRIL 6TH :—9 TO 12 A.M.

1. A direct acting steam engine has the following dimensions :
Cylinder diameter = 10 inches.
Stroke = 12 inches.
Connecting rod is six cranks long.
Find (*a*) The forces acting on the connecting rod when the crank has turned through 60° from the horizontal.
(*b*) The torque on the crank shaft for the same position of the crank.

2. Explain how the weight of the reciprocating parts of an engine affects the forces acting on the crank pin. How would you correct an indicator diagram for the inertia of the reciprocating parts ?

3. In an oscillating engine find (*a*) An expression showing the re-

lation between the force acting at right angles to the crank pin and that acting on the piston.

(*b*) An expression showing the angular velocity of the swinging cylinder in terms of the crank velocity.

4. Explain fully how you would find the I. H. P. of an engine from the indicator diagram. The diameter of a steam engine cylinder is 15 inches, the stroke is 15 inches, the piston rod is $2\frac{1}{2}$ inches in diameter, the mean effective pressure found from the indicator diagram is 30 lbs. per sqr. inch. If the engine be double acting find the I. H. P. when running at 300 r. p. m.

5. The fluctuation of energy of an engine of 200 I. H. P. is 15% of the energy exerted in one revolution. There are 100 r. p. m. Find the weight of a fly wheel 20 ft. in diameter that the fluctuations in speed may not exceed one-fiftieth.

6. In the Robb engine rope brake the wheel is 5 ft. diameter and the ropes, four in number, are $\frac{3}{4}$ inch diameter. During a trial W and w were observed to be 400 lbs. and 45 lbs. respectively. W_o and w_o were 800 lbs. and 20 lbs. Find the brake horsepower at 300 r. p. m.

7. A rope is passed twice around a snub-post and a man exerts a pull of 150 lbs. on one end of it. Find the pull on the other end that will just overcome that of the man $u = 0.33$.

8. In a system of two movable inclined plans the co-efficients of friction between the rubbing surfaces are all equal to 0.3. If the angle of inclination of the planes be 30° find the efficiency of the system.

9. Give Mohr's construction for finding the piston acceller tion in the direct acting engine.

10 Investigate the forces acting on any form of band brake, and find in terms of the force on the handle the HP it will absorb.

FOURTH YEAR.

DYNAMICS OF MACHINERY.

SATURDAY, APRIL, 6TH :—9 TO 12

Only ten questions to be answered.

The figures after the questions show proportionate marks awarded.

1. It is desired to balance a double tandem vertical yacht engine with

cranks at right angles and Stephenson's reversing link motion. Explain a method of obtaining the forward and after balance weights. (25)

2. Find expressions for the alternating force and couple in a Willans engine for any angle of the cranks. Find at what angle of the crank this force is a maximum. (15)

3. In a Von Hefner Alteneck transmission dynamometer the roller frame has a length four times the distance between the centres of the rollers. The angles that the belt makes with the horizontal line of the pully centres, *i. e.* α and β, are each 30°. The weight on the scale pan is 60 lbs. The driving pulley is 3 ft. in diameter and it makes 100 r. p m. Find the horse-power transmitted. If five lbs. of the above weight on the scale pan is due to friction of rollers and stiffness of belt over them, find the percentage error made in estimating the horse power received by the driven pulley on the assumption that the whole scale pan weight is the measure of the power. (20)

4. Find the work done against friction per revolution:—

(*a*) By a flat pivot turning in its bearing.

(*b*) By a conical pivot turning in its bearing. (15)

5. Explain the Siemen's dynamometer. How it may be used as a transmission dynamometer? (10)

6. An engine develops 1000 H.P. at 100 r. p. m. The fly wheel weighs 40 tons and has a radius of gyration of 15 ft. Neglecting all hurtful resistances and assuming that the indicator cards have the same area at all speeds, find how long the engine will take to get up speed from rest. (15)

7. How would you find the radius of gyration of a rigid body such as a steam engine connecting rod. (15)

8. A connecting rod weighs 150 lbs. The time of an oscillation about its small end is $\frac{1}{3}$ second. The centre of mass is 18 inches from the same end. Find its moment of inertia. (10)

9. A uniform rod of mass M is rotating about an axle fixed at one end, with angular velocity $= \omega$ and angular acceleration $= A$, under the action of a force P acting at right angles to a line joining the fixed axle and the centre of mass of the rod. Find:

(*a*) The magnitude of the force acting on the axle.

(*b*) At what distance from the axle must P act so that there may be no reaction there. (15)

10. What is meant by the sensitiveness of a governor? What effect has loading the balls of a centrifugal pendulum governor on the coefficient of insensibility? What is an isochronous governor? (15)

11. Explain a method of drawing a curve of controlling force for a pen-

dulum governor, which also shows the revolutions and radius at which the pendulum acts. (15)

12. What conditions govern the continuity of the suction column in a uction pump ? (20)

SECOND YEAR.

KINEMATICS OF MACHINES.

SATURDAY, APRIL 6TH :—MORNING, 9 TO 12.

(Any ten questions may be atrempted. Figures give proportional marks. Illustrate your answers by sketches when necessary.)

1. Give a brief account of the scope and objects of the study of Kinematics of Machines. What is meant by the terms :—Lower pair, Higher pair, Closure, Inversion. (20)

2. Define Plane Motion. Show how to find the centrodes of two bodies having relative plane motion. (20)

3. In experiments with a 12 pr. field-gun the velocity of the shell was found from the following data :—

Time (seconds).....	0.96	1.45	1.95	2.46	2.98	3.51
Distance from gun (yards)	400	600	800	1000	1200	1400

Calculate the velocity at 500, 700, 900, 1100 and 1300 yards, and find the velocity with which the shell left the muzzle. (20)

4. Sketch the arrangement of the links in the common pantagraph. Prove the essential property of this mechanism. (20)

5. Sketch the Peaucellier straight-line motion, describe its arrangement, and prove that its tracing point describes a straight line. (25)

6. Show how to draw a polar diagram of piston velocity for a direct-acting steam engine. Explain clearly how to find the scale of this diagram. (20)

7. Make sketches showing the various inversions of the slider-crank chain, and give an example of the occurrence of each in practice. (15)

8. Explain (with sketches) what is meant by : Expansion of an element. Reduction of a chain. (15)

9. Find the angular velocity ratio of the first wheel and the last in a compound spur-wheel train. (15)

10. Show how to draw the outlines of involute teeth for a pair of

wheels having a given velocity ratio. Prove that this form of tooth gives uniform velocity ratio. (20)

11. What is a reverted wheel-train? A reverted epicyclic train consists of an arm A, an annular wheel B (100 teeth) an idle wheel C (25 teeth) and a third wheel D (50 teeth). B is fixed. Find how many revolutions D makes for each revolution of the arm. (20)

12. Show how to draw the outline of a rotating cam which lifts a follower with uniform acceleration during $\frac{1}{3}$ of a revolution, and then allows the follower to fall freely. (20)

SECOND YEAR.

DESCRIPTIVE MECHANISM.

APRIL 8TH:—9 TO 12.

Only ten questions to be attempted.
All sketches should be made freehand and as carefully as possible
The numbers after the questions show proportionate marks awarded.

1. What is a cam?

2. Describe Watt's parallel motion. Find the point on the connecting link whose path closely approaches a straight line. (20)

3. Sketch and describe Scott Russell's straight line motion. On what does the accuracy of this motion depend? (10)

4. Sketch any form of quick return motion that could be used on a planer or shaper. (15)

5. Sketch a longitudinal section of a hand plane. Name the various parts and describe the function of each. (15)

6. What is meant by the top and bottom rake of a tool. (10)

7. Sketch a bolt with a square head and hexagon nut. Supposing the bolt to be 1 inch in diameter mark the usual dimensions of the nut and the bolt head.

Make a sketch of a stud, describe how it is screwed into place, and state some circumstances under which it is used in preference to a bolt. (15)

8. Show by sketches two methods by which a cotter may be prevented rom slacking back and two methods of connecting together the separate lengths of a line of shafting. (15)

9. Sketch a form of bolt used for securing a machine to a stone foundation, and explain how the bolt is fixed in the stone. (10)

10. Sketch and explain the way of fixing a wheel or pulley to a shaft by means of (*a*) a sank key, (*b*) a saddle key, (*c*) a round key. (10)

11. A belt running at a speed of 2,000 ft. per min. transmits 20 H.P. Required: first the driving tension, that is, the difference between the tensions on the tight and slack sides; second, the tension on the tight side assuming that it is twice the tension on the slack side; third, the width of the belt assuming that the safe tension per inch of width is 90 lbs. (20)

12, Two shafts are 3 feet centre to centre. The driver is rotating at 100 r. p. m. It is desired that the driven pulley should rotate at 250 r. p. m. Find the diameters of the pulleys that would accomplish this. (14)

13. Describe and make a sketch of a Lancashire boiler. (20)

14. Make such a sketch of a single cylinder horizontal steam engine as will show its various parts and give a short description of these parts. (20)

FOURTH YEAR.

MINING ENGINEERING COURSE.

PRACTICAL MINING.

8TH APRIL, 1901.

(*The figures in* [ ] *at the end of each question give its proportional marks.*)

1. In each of the two following cases of deep borings, for the purpose of prospecting, state the best method to use. name the principal pieces of apparatus and rig required, describe concisely the method of work, and state the probable rate and cost.

(*a*) A supposed coal bed is to be sought to a depth of 400 feet. The overlying strata are alternate shales and sandstones. [5]

(*b*) A quartz vein dipping 60° is to be sought at a point where it will probably be found at a depth of 1000 ft. vertically. The strata are hard slates and dip 60°. The hole is to be vertical. [5]

2. Show a good method of timbering a shaft in moderately bad ground and give general scheme of connection between this and level timbering at a station. (Give sketches with concise explanations.) [15]

3. In a coal mine (*a*) What is meant by a shaft pillar, and what would be its size and shape in a seam 6′ thick dipping 20° and 800 ft. deep at the shaft. [5]

(*b*) If the roof is moderately bad and the mine wet and firey how would you lay out the workings? Give the general scheme in outline, and detail one working place and show its connection with main road. (Give sketches with concise explanations. [5]

(*c*) What are splits in ventilation, and what are the advantages of and practical limits to splitting. [5]

4. In an ore mine (*a*) If the vein be soft or friable stuff 4 feet thick of dipping 60° with a good hanging wall, what method of mining would you use and why? [5]

(*b*) If a mass of soft ore be 100 × 600 ft. and 400 ft. in depth and covered by 100 ft. of drift. Describe some appropriate method of working by caving. [10]

6. In a coal mine with an output of 1000 tons in 10 hours, what method of haulage would you use if the floor, although level in the long run rolled badly and gave irregular grades up to 10° for 600 ft. ? [10]

6. Give brief answer to the following :

(*a*) What is a sinking pump, and wherein does it differ from an ordinary mine pump? [3]

(*b*) What is a differential pump, and what especial advantages has it? [2]

(*c*) What head can be carried on ordinary mine pump valves? [2]

(*d*) What devices are used to enable us to carry greater heads, and what are the results ? [3]

7. If called on to sink a vertical prospecting shaft 300 ft. deep in hard quartzite rock how would you proceed if the conditions were as stated below. The country is cleared and cultivated; a village of 50 houses is three miles distant; the nearest railway station is ten miles off with fair roads. At 100 miles is a city in which machinery may be bought, or rented for season at ½ cost price.

Skilled labour must be brought from city, common is plentiful at hand.

The machinery and tools used are to be removed when the shaft is finished.

Name the kinds and quantities of machinery, supplies and tools required. Describe the method of procedure—lay out, drilling, blasting, hoisting, pumping, etc., etc. State the probable length of time required after breaking ground and the total cost. Assume reasonable wages. [25]

FOURTH YEAR.

MINING MACHINERY.

APRIL 15TH.

If the time is too short for the complete solution of these problems the arithmetical work may be indicated and left incomplete.

1. A mine and mill situated on a railway, have a modern steam power plant of 1500 H. P. It is then found necessary to get a water supply of 250 gals. per minute from a lake 1 mile distant and 300 feet lower than mill—assume the necessary pipe line as laid.

(*a*) Will it be better to build a small steam pumping station and haul coal to it by wagon road from mine 1½ miles, or to erect necessary electrical plant with a transmission line 1 mile long.

(*b*) Specify the chief pieces of apparatus required, stating type and approximate H. P.; and if electricity is used, give the size and number of wires in the transmission line and the voltage and amperage carried.

2. A mine has intake and outtake each 9′ x 14′—1000 ft. long. Between them the total air courses, if used as a single line of ventilation, give a resistance equal to that of an ordinary air way 5 x 10—8000 ft. long.

(*a*) What horse power will be required to send 16,200 cub ft. of air through the mine in this condition.

(*b*) What horse power will give same ventilation if the mine is split into 2 equal parts each equivalent to an air way 5 x 10—4000 ft long. The intake and outtake remaining as before.

(*c*) What ventilation would be given (cu ft. per minute) if the horse power of (*a*) were applied to the conditions (*b*).

3. (*a*) Specify the engines, ropes, hoists, sheaves, cages, etc., for a balanced hoisting plant capable of handling 1000 tons in 10 hours from a depth of 1000 feet.

(*b*) What would be the approximate I. H. P. of the engine.

(*c*) What would be the capacity of the plant if run unbalanced?

(*d*) What would be the requisite I. H. P. to give the original output if unbalanced?

(*e*) Why in spite of the obvious theoretical economy, is balanced hoisting often unsatisfactory.

THIRD YEAR.

ORE DRESSING.

APRIL 6TH :—9 A. M.

1. (*a*) Why is it often necessary to dress or concentrate ores, and what in a general way is the result of such dressing?

(*b*) In ordinary dressing plants is this concentration carried as far as possible, and if not, why are we content to do inaccurate or incomplete work.

2. (*a*) How swift a rising current of water will be required to support a sphere of galena 0.003 meters in diameter. (Sp. gr. galena = 7.5.)

(*b*) How swift a current will support ordinary fragments of galena—of same diameter as sphere in (*a*) as measured through sieves—if the grains are free to crowd one another.

3. (*a*) What is the theoretical diameter ratio of equally falling spheres of galena (Sp. gr. 7.5.) and quartz (Sp. gr. 2.6.)

(*b*) Experiments made with mixed irregular fragments of galena and quartz show a different ratio. Is this greater or less, and why?

(*c*) How do we take advantage of the facts brought out above, in actually separating the minerals named.

(*d*) Under what conditions can we use rising currents to separate grains differing by more than the ratios above named.

4. (*a*) What is meant by crushing in stages and what are the advantages and disadvantages of this method.

(*b*) Name and distinguish the leading types of crushing machines, and sketch and describe in some detail one coarse and one fine crusher.

5. (*a*) Describe and sketch some good form of classifier, and explain its use in ordinary ore dressing.

(*b*) What is the method usually employed for coarse sizing of broken rock, and what is the minimum size of opening in ordinary apparatus for this service.

(*c*) Name some approved machine for fine sizing, and state its ordinary minimum.

(*d*) When still finer stuff must be sized what apparatus do we employ

6. (*a*) What is the principle of separation on inclined planes, and what sort of material is best treated on tables.

(*b*) What advantages are gained by giving the surface of a table a quick return or bumping motion.

(*c*) Describe some approved form of table, making use of a moving surface.

THIRD YEAR.

METALLURGY. (Mechl. Eng. Course.)

DECEMBER 20TH:—9 TO 11.

1. Name the iron ores commonly used for making pig iron. What elements are not desirable in an iron ore, and why?

2. Give outline sketch of iron blast furnace, and show in your sketch what action is going on in different parts of the furnace.

3. How do you grade cast iron? What are effects of the different elements in iron for foundry purposes?

4. Describe two methods of making wrought iron. How do you make malleable castings?

5. Outline very briefly the open hearth and Bessemer processes, showing essential points of difference between the two. Are there any differences in the metal produced by the two?

6. What is cementation, and for what is it used? What is use of crucible process at present time?

FOURTH YEAR.

METALLURGY.

TUESDAY, APRIL 16TH:—9 TO 12.

PART A.

1. Name three methods of finding the calorific power of a fuel. Do fuels having high calorific power always have high calorific intensity? Give reasons for your answer.

2. Calorimeter Test:

Weight of iron wire used	=	.01 grams.
Weight of water in calorimeter	=	2,300 grams.
Water equivalent of calorimeter	=	421 grams.
Coal used	=	1 gram.

Heat of combustion of 1 gram iron wire = 1.6 gram calorics.
Pressure of oxygen 25 atmospheres.
Neglect the heat produced by formation of acids.

Preliminary Period.		Combustion Period.		After Combustion.	
Minutes.	Degrees.	Minutes.	Degrees.	Minutes	Degrees
0	18.58	4½	19.23		
1	18.55	5	20.56	8	20.94
2	18.52	6	20.94	9	20.92
3	18.49	7	20.96	10	20.90
4	18.46			11	20.88
				12	20.86

Determine calorific power of the coal.

3. What value can you see in the study of microstructure of metals for men engaged in the practical working and production of the metals ?

4. What constituents has the microscope shown to be present in steel, and of what does each consist ?

5. Discuss segregation in steel. What may be done to counteract its influence ? What are malleable castings, and how are they made ?

6. What is effect of lead on brass ? How would you make "spring" brass ? What is "Muntz" metal ?
How can we remove oxides from bronze ?

7. What kind of bearing metal would you use for a rolling mill ? What kind for a rapidly revolving shaft with light pressure ? For bearings liable to shock ?

PART B.

8. Derive a formula for determining temperature by means of specific heat.

Assuming the specific heat of copper to be .1, calculate the temperature of a furnace, if 1,000 grams of water at a temperature 20° C be heated to 40° C by dropping into it a mass of 300 grams of copper heated to the temperature of the furnace.

9. Explain the principal of the Resistance Pyrometer.

Derive the formula for calculating the pt by means of the resistance pyrometer.

If the platinum temperature (pt) of the boiling point of sulphur be 421.6 and the true temperature be 444.5, find the value of δ, the constant which standardises the instrument.

10. Explain a method of standardizing a thermo-junction.

Answer parts A and B in separate books, and mark on the outside the proper letters.

FOURTH YEAR.

MILLING AND METALLURGY OF GOLD AND SILVER.

SATURDAY, APRIL 13TH;—9 A.M.

Write the answers for first and second parts in separate books.

PART A.

I. Describe the modern gold dredge as used in alluvial flats bordering rivers or lakes, but not ordinarily submerged. Describe the machine, explain its method of use, how is gold recovered; what is done with the waste, what is the capacity per day, what is the cost of treatment per yard?

II. In stamp milling what is the use of the chuck block, what is meant by height of discharge? Compare high and low discharge in their influence on crushing and amalgamation, and state which ores are best treated by each method. Name the plates used for amalgamation and state the functions of each.

III. State the ordinary limits of speed weight and drop in stamp mills. What is the effect of a considerable increase in drop? What power is needed to drive a modern 50 stamp battery (stamps only) for free milling quartz rock, and what would be its approximate capacity per day?

IV. Describe pan amalgamation, and state the cases in which this method may still be properly used.

V. Describe and discuss critically the concentration features of some approved type of gold or silver mill. The kind and number of machines and their arrangement should be given for some ore which may be assumed. The machines need not be described.

PART B.

VI. What is the reaction when gold dissolves in cyanide? What are the sources of cyanide consumption, and which cause the largest losses? What is meant by direct filling; by intermediate filling and what advan-

tages are claimed for each? Describe the zinc box precipitation, and the treatment of the precipitate for its gold values.

VII. Describe the sulphuric acid process of parting gold and silver.

VIII. What ores are best adopted to chlorination? Describe the vat process, stating chemicals used, method of manipulation, and usual method of precipitating and recovering gold.

IX. Outline the Russel process for treating silver ores, stating what chemicals are used, and its advantages over the Patera process.

X. What ores are adapted to roast amalgamation? How would you proceed to treat such ores, and what losses and what extraction would you expect?

FOURTH YEAR.

ADVANCED METALLURGY.

MONDAY, APRIL 1ST:—9 TO 12.

1. State briefly a process for obtaining zinc from its ores, showing by rough sketches the arrangement of plant.
Give reactions which are involved in the Belgian process and show influence of temperature upon the process. Can zinc be produced by a blast furnace process. Give reasons for your answer.

2. Give an outline sketch of a process for recovering metallic nickel from sulphide ores, giving the principal reactions.

3. Describe the method of obtaining metallic Antimony by use of a shaft furnace. What are sources of loss. What steps are necessary to get a pure product for market?

4. Describe a process for making white Arsenic and also for making metallic Arsenic.

5. How do you recover Bismuth from litharge and cupel bottoms?

6. What are the main difficulties encountered in recovering Tin from its ores and how are they overcome. Give outline of the Reverberatory method. How is crude tin refined?

7. In what ways may Mercury be recovered from its ores. Upon what reaction does the ordinary method depend. Sketch a furnace and show the method of working and the kind of ore to which it is adopted. What difficulties are found in condensation of mercury vapors. Sketch a condenser showing the various parts and the material of which they are constructed.

FOURTH YEAR.

ELECTRO-METALLURGY.

THURSDAY, APRIL 11TH:—9 TO 12.

1. Describe a process for manufacture of Aluminium, giving materials employed. What materials are available as sources of Aluminium and what are the advantages and disadvantages of each.

2. Outline a plant for refining copper by electrolysis, giving the current density employed, the composition of the electrolyte, any changes which may take place in the electrolyte and the operations necessary to maintain the electrolyte in satisfactory condition.

3. Describe a process for electrolytic treatment of copper ores or matte. What are the difficulties to be expected.

4. What conditions must be maintained in order to deposit nickel by use of the current? How could you separate copper from nickel obtaining both in metallic state by use of the current?

5. Describe the electrolytic parting of Doré bullion, giving steps necessary in obtaining both metals in market form. What electrolyte is employed. What becomes of other metals which may be present in Doré bullion?

6. To what kind of work is the use of the current restricted in the metallurgy or treatment of iron?

7. What success has attended the electro deposition of zinc. What is the cause?

8. What is theory of electrolysis?

THIRD AND FOURTH YEARS.

RAILWAY ENGINEERING.

TUESDAY, APRIL 2ND:—9 A.M.

1. State the measures necessary to be taken to secure the incorporation of a Canadian Railway Company and the methods by which its operations are regulated by the government. State some of the principal powers given to railway companies.

2. Write out as fully in detail as you can an estimate of the cost of construction of an average mile of Canadian railway.

3. Calculate the resistance in pounds per ton that has to be overcome

when a train is running at thirty miles per hour up a grade of seven-tenths of a foot in a hundred and around a three degree curve.

4. If two hundred forty ton freight cars are handled in both directions daily upon a railway, with engines having a load of 100,000 lbs. upon the drivers, calculate the saving of running expenses per day that could be made if the road were changed from one with grades of one foot per hundred and ten degree curves to one with grades of six-tenths per hundred and four degree curves. Take the cost of a train mile at eighty cents.

5. Explain why vertical curves are used upon a railway. Calculate the proper theoretical curve to join a falling one per cent. grade to a rising nine-tenths per cent. grade. The trains are three hundred feet long and the running resistance six pounds per ton. Give the elevation for every station of the curve.

6. Discuss the effect of changes of length between termini upon the cost of operating trains over a railway.

7. What causes govern the selection of the general route for a railway. Supposing you were free to locate it to the best advantage as a money earning line, what points in particular would you study before putting your parties in the field and for what reasons?

8 What causes earthwork slips? Under what conditions would you expect them and what measures would you take to prevent them?

9. Write out a brief specification for the construction of a piece of concrete masonery, covering the materials supplied, the method of mixing and the method of building and supposing it to be of considerable size.

10. Draw a dimension sketch of a rock tunnel section and of the usual timbering in ordinary stable ground.

11. What are the functions of ballast in a railway track? State the materials most frequently used as ballast, their particular merits and approximate cost.

12. Mention the principal clauses that appear in a rail specification, and the reasons why each is introduced.

FOURTH YEAR.

TRANSPORTATION.

THURSDAY, APRIL 4TH:—2 P.M.

1. State approximately the cost of transportation per ton-mile by road, railroad and lake barge. Discuss the situations in which each system would prove the most economical. In American railroad practice what

proportion does interest on capital invested usually bear to operating expenses. What proportion of operating expenses is for business and general management.

2. Explain the general principles of locomotive design, stating why there are so many different types in service and in what way you would take the powers of the locomotive into account in selecting a railroad location.

3. The cost of a train-mile being approximately one dollar, state how variations in the rise and fall of the track will affect it, that is, what will be the cost of running a train over one foot of height on different classes of grades.

4. Give values in pounds per ton of the friction resistance to motion of a train, and state where on a location the variations of this resistance should be taken into account.

5. What do you consider to be the most important factors to be considered in the choice of a railroad location? State them in order of importance, giving reasons for your opinions.

6. Describe how you would go to work to explore a tract of country, say 60 miles long by 20 wide, for a railroad location, mentioning all the equipment that you would require.

7. How would you determine the bearing power of a pile for a trestle? How would you determine the proper spacing for trestle bents? Why are trestles such a frequent feature of our railways?

8. Draw dimension sketches of three common forms of culverts, designing them for a waterway of 6 sq. ft.

9. Describe some of the usual methods of grading, giving approximate costs per cub. yd. for each. Mention the circumstances under which each would be used.

10. What provision for changes of temperature is made in track laying? What would happen if such provision were not made? Are rail tracks ever laid without it? Why is this possible?

THIRD AND FOURTH YEARS.

MUNICIPAL ENGINEERING. (WATER SUPPLY.)

WEDNESDAY, APRIL 5TH:—9 A. M.

1. What are the Sudbury River records?

State the average daily yield of one square mile of watershed for the period covered by these records from 1875 to 1890.

What was the minimum daily yield for a period of three months?

2. Why is it that the year of lowest rainfall on a watershed may not be the year of minimum stream flow? And how is it that the fluctuations in the natural flow are of much greater extent in some streams than in others, with the same area of watershed and the same climatic conditions?

3. What are the requirements as to quality which water for a domestic supply should possess? And state the impurities which are liable to occur in (*a*) surface supplies, (*b*) underground supplies?

4. What is meant by the hardness of a water? What causes it, and how is it measured?

5. Describe the method of obtaining a water supply by means of driven wells, stating the conditions under which the system may be advantageously used and the points of importance to be observed in its construction.

6. What is a filter gallery? Mention circumstances which in some cases lead to a falling off in the quantity and quality of the water from such a source.

7. Describe the "air lift" method of raising water from tube wells. What are its advantages?

8. Describe, with sketch, a method of constructing a distributing reservoir where the material upon which it is built is of a porous nature.

(Answer only *two* of the next *four* questions.)

9. In determining the proper form of cross-section for a masonry dam, what assumptions are made?

State the different ways in which such a dam may fail.

If the height is 45 ft., the up stream face vertical, the section of a trapazoid 9 ft. wide on top and 27 ft. at the base, find with reservoir full

(*a*) the factor of safety against sliding,

(*b*) " " " " overturning,

(*c*) the maximum pressure per sq. ft. on the foundation.

10. A steel sandpipe, 60 ft. high and 30 feet in diameter, rests upon a tower and has a conical bottom (apex angle = 90°).

Find the stress per unit of length (*a*) in a vertical side joint 50 ft. below the top; (*b*) in a radical joint of the bottom ten ft. from the apex of the cone.

11. ABCD is a rectangle 2000′ x 1500′. Along AB and BC is a 6″ pipe and along AD and DC an 8″ pipe, which are connected at A and C.

A thousand gallons of water per minute enter at A. Find the loss of head in friction in the system when it is discharged (1) at C, (2) at B.

What will be the loss between A and C if these points are connected diagonally by another pipe 6 inches in diameter?

12. A city of 10,000 inhabitants depends for its water supply partly on pumps and partly on the water stored in a standpipe 80 feet in height, situated on a hill 160 ft. higher than the point where its discharge pipe (4,000 ft. long and 18″ in diameter) enters the city. The minimum head required at the latter point is 200 feet. The pumps, which have a capacity equal to the maximum fire and domestic draught, are to run only 12 hours a day. If it requires one hour to get the pumps ready for service, what should be the diameter of the standpipe?

M. Sc. EXAMINATION.

METALLURGY OF COPPER AND LEAD.

MARCH, 29TH:

1. Calculate a blast furnace charge for 100 lbs. of lead ore containing 50% Liv_2, 15% Feo., 10% Cal., 1% S.

There is available an iron ore with 10% Liv_2, 70% Feo. and a limestone with 50% Cal. Slag to be 30% Liv_2, 40% Feo., 20% Cal.

2. What lead ores are suitable for ore hearth? What for reverberatory? What for blast furnace?

3. Outline briefly the Parkes' process. What are losses in zinc and amounts? What is effect of As., Sb., Cn., Sn., in process and what becomes of them? Outline briefly the different operations necessary.

4. In smelting in the lead blast furnace, what reaction takes place? Supposing speiss forms, how would you change the charge to

avoid it? Show sketch of vertical section of furnace. How much of it is generally water-cooled?

5. Describe the building and burning of a heap for wasting copper ores. What are the conditions most favorable for the expulsion of arsenic and antimony during wasting?

Show by sketches the construction and operation of any one of the modern mechanical furnaces.

6. What is the type of operation called "wasting smelting" as practiced usually at English copper works? How is the operation conducted?

7. Show by sketches two arrangements for continuous separation of matte from slag.

8. What is meant by Pyritic Smelting? How is it carried on?

9. Sketch a Bessemer converter for copper work. On what grade of matte can you work? What losses occur?

10. Given a matte containing 20% copper, 48% metallic iron, 32% sulphur: How would you treat it to make a 50% matte? If the slag showed by analysis 50% Feo., 30% Liv_2, 10% Al_2O_3, 5% Cu., 5% Cal., how much slag would result and what percentage of the copper in original matte would be slagged? An approximate calculation only is required.

FACULTY OF LAW.

FACULTY OF LAW.

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CIVIL PROCEDURE.

TUESDAY, APRIL 9TH :—3 TO 6. p.m.

(*The ninth and tenth questions are for the Third Year only.*)

1. What persons can make an affidavit for capias? What persons are exempt from capias? What formalities must be observed when the plaintiff's claim is for unliquidated damages?

2. Draft an affidavit for capias against a trader who refuses to make an abandonment of his property.

3. Explain what is meant by secretion in matters of capias and attachment before judgment. Can a capias be maintained by reason of secretion committed outside the Province of Quebec?

4. A railway company enters upon land belonging to an individual without previously complying with the provisions of law as to expropriation. What is the most expeditious remedy which the proprietor can exercise? Draft the initial proceeding.

5. The A. Company is a trading company organized by letters patent under the Companies' Act (Dominion), for the purpose of buying and selling butter and cheese. The company decides to engage in business as a dealer in live stock. How can a shareholder prevent such an excess of power? By what person should the action be taken, and what formalities must be observed?

6. State the general rules governing the grant or refusal of mandamus.

7. What is the distinction between prohibition and appeal? Does prohibition lie after judgment in the inferior court?
When must the objection to the jurisdiction be first raised in the inferior court?

8. Outline the proceedings in cases of petition of right.
Can discovery and inspection of documents be ordered (*a*) against the suppliant, (*b*) against the crown?

9. What part can a creditor whose claim is not mentioned in the certificate of hypothecs, take in proceedings for confirmation of title?

10. Give the rules for the collocation of conditional hypothecs in the distribution of the proceeds of immoveables sold in execution.

FINAL EXAMINATIONS.

COMMERCIAL LAW.

INSURANCE—CARRIERS—BANKING.

FRIDAY, APRIL 19TH.

1. What losses may be insured against?

2. After a premium has been actually paid, can it ever be recovered; if so, under what circumstances?

3. What warranties on the part of the insured are implied (*a*) in marine insurance (*b*) in fire insurance?

4. Is the insurer liable for loss by collision?

5. A. insures his warehouse, describing it as used for a particular business. B. insures his interest in the same building as hypothecary creditor. If A. alter the use of the building without the consent of the insurer (*a*) will it affect A.'s policy; (*b*) will it affect B.'s policy?

6. The charterers of a ship put her up as a general ship, the master signing bills of lading in the usual form. The holder of a bill of lading, ignorant of the terms of the charter-party, seeks to hold the owners liable on the bill of lading. Argue his case.

7. A quantity of cheese is shipped to Montreal consigned to the order of a certain bank. In the margin of the bill of lading are the words:—"Notify 'A,' Canada Cold Storage." The cheese being perishable is delivered by the carrier to the Cold Storage Company without any notice of the bank's interest and without any notice to the bank. A. who is the selling agent of the shippers, obtains delivery from the Cold Storage Company, sells the cheese and absconds with the proceeds. Has the bank, the holder of the bill of lading, any recourse; if so against whom and why?

8. (*a*) How is the property in a British ship divided?
(*b*) Who may own a British ship
(*c*) How is a British ship registered?
(*d*) How is a British ship sold and how mortgaged?

9. How may a railway company obtain right of way through a farm, the owner of which refuses to sell? State the procedure fully.

10. Upon what does the security of bank circulation depend in Canada, and how does the present position of the note-holder, in case of insolvency, compare with his position under the Bank Act of 1871?

Additional Questions for Third Year Only.

SALE—BILLS AND NOTES.

11. Is the sale of a thing which does not belong to the seller ever valid?

12. What are the seller's obligations as to delivery?

13. (*a*) Does a seller's suit for the price of a thing affect his right of action to dissolve the sale for non payment of price?

(*b*) Within what time must an action for the dissolution of a sale of moveables be brought?

14. How is an acceptor's liability affected by non presentation of a bill?

15. Has an endorser *pour aval* right to notice of protest?

16. What effect has the addition to the signature of a promissory note of words denoting quality (e. g. "Trustee," "President," "Attorney") as regards the makers liability?

FINAL EXAMINATIONS.

CONSTITUTIONAL LAW.

MONDAY, 22ND APRIL:—3 TO 6 P.M.

1. Upon the conquest of a country by Great Britain, what rules apply as to the laws which shall prevail in the conquered territory?

2. Discuss, with reference to the decided cases

a. the powers of the Province to lay down rules or conditions as to the mode in which a particular kind of business is to be conducted in the province;

b. the powers of the Province and of the Dominion, respectively, to regulate or prohibit the liquor traffic.

OBLIGATIONS.

1. Give the general principles which determine whether

a nullity is absolute or relative. Apply those principles to the cases of error as to the nature of the contract, error as to the substance of the object, infancy, minority, insanity, interdiction for the different causes for which it exists, want of authorization in the case of a married woman, illegal object or consideration, sale of a thing that does not belong to the vendor.

2. Does an unaccepted offer ever bind the one who makes it; does it ever give rights to the one to whom it is made; apply those principles to the case of a release made by the creditor but not accepted by the debtor, and also to the case of an unaccepted offer to contract which states that such offer will remain open for a certain time; state at what moment and place a contract by correspondence, telegraph or telephone is formed.

3. Explain the different remedies that a creditor has when his debtor fails to fulfil an obligation.

FINAL EXAMINATIONS.

CORPORATIONS.

THURSDAY, APRIL 11TH:—3 TO 6 P.M.

(Third year students are requested to omit questions 1, 2 and 3 and to answer the questions on Agency and Partnership.)

1. Define a corporation. How is it distinguished from a natural person, and how from a partnership?

2. What are the two main methods of obtaining incorporation in this Province?

3. To what corporations do the provincial general clauses apply?

4. What are the powers and disabilities of corporations in respect of the ownership of real estate?

5. What is the law as to representation by proxy at meetings of shareholders: first, under the general principles of law; and secondly, under the statutory laws in force in this province?

6. What is preferred stock and under what conditions can it be legally issued?

7. What was the object of the Mortmain laws passed in France and in England, and how are they affected by modern legislation ?

8. What is our present law as to the right of corporations to become executors ?

9. What is the penalty for declaring dividends beyond the earnings of the company ?

10. To what companies does the Winding Up Act apply ?

AGENCY AND PARTNERSHIP.

(For Third Year only.)

PARTNERSHIP.

11. When a creditor has judgment against an individual partner for a personal debt, what recourse has he against the partnership or its property ?

12. What is a dormant partner, and to what extent is he liable to the creditors of the firm ?

AGENCY.

13. What is the rule as to the right of an agent entrusted to buy or sell a property as to buying or selling it on his own account?

14. When an agent is entrusted with goods by a principal, for what purposes is he deemed to be the owner of the goods ?
If he pledges or sells the goods for advances to himself, in what cases is the obligation binding on the principal ?
How is a contract of agency terminated ?

15. What difference is there between the right of action by a principal against his agent, and his right against a purchaser of goods or other debtor ?

FINAL EXAMINATIONS.

CRIMINAL LAW.

SATURDAY, APRIL 6TH:—3 TO 6 P.M.

N.B. Questions 13 *to* 18 *inclusive to be answered by Third Year Students only.*

1. Define: a common nuisance which is criminal ; conspiracy to defraud ; arson ; subornation of perjury.

2. If a person commits a burglary at Toronto and is arrested in Montreal with the property thereby secured in his possession, could he be tried here, and if so for what crime?

3. How is a corporation made to answer to a bill of indictment? What is the writ of distringas? Is it now necessary?

4. How has the Criminal Code limited the powers of the Grand Jury with reference to the preferment of bills of indictment?

5. In this Province, in relation to a Grand Jury, will a challenge lie either to the array or to the polls? Refer to a decision on the point.

6. When is the motion in arrest of judgment an effective method of procedure, and what is its effect?

7. Name, without going into details, the remedies which exist after verdict.

8. What is meant by the extradition of criminals, and how do the provisions of a treaty become the law?

9. What evidence suffices to justify a committal for extradition?

10. Is it necessary, according to Canadian practice, for the extradition judge to have before him a requisition or authorization of the demanding state? Cite an official opinion and a decision on the point. What is the general practice in the United States?

11. Mention the existing Extradition Treaty and Extradition Arrangements between the United States and Canada.

12. What two essential notices has the extradition judge to give the prisoner concurrently with the committal for extradition.

THIRD YEAR.

13. On a criminal prosecution for libel under Lord Campbell's Act (6 and 7 V. c. 96. Cr. C. sec. 634) what is it competent for Defendant to plead?

14. What is the precise operation of drunkenness upon the commission of crime?

15. In reference to exemption on the ground of madness when may criminal responsibility co-exist with insane delusions?

16. A defendant is tempted to make a confession through the

mistaken belief, created by artifice, that some of his accomplices are in custody. State your views as to the admissibility of such a confession in evidence.

17. What are the general principles which govern the admission of confessions as evidence.

18. Contrast the personal and the territorial theory of jurisdiction as to the prosecution of criminals.

FINAL EXAMINATIONS.

GIFTS—SUBSTITUTIONS—SUCCESSIONS.

SATURDAY, APRIL 13TH :—MORNING, 10 TO 1.

1. A. during an illness, believed to be mortal, makes a donation *inter vivos* to B., which the latter duly accepts.

A. dies of the illness and before registration of the donation? What grounds if any, do the circumstances stated, give A's heirs for attacking the donation?

If A. had recovered, what ground, if any, would the circumstances stated, have given him for attacking the donation?

2. A. gives a property to B., stipulating in the deed, that in the event of the latter dying without issue the property given shall revert to the donor —B dies without issue during A's life time.

What right, if any, has A. to the property given?

C. gives unconditionally a property to D., his grandson. The latter dies intestate and leaving surviving him children, who, however, renounce his succession, his father who accepts the succession, and C.

What claim, if any, has C. to the property given?

In the first case how would the right, if any, of A. and in the second case how would the right, if any, of C. be affected by the donee's having sold the property given him?

3. What recourse, if any, has the donee of a property who pays a debt for which such property was hypothecated, against the donor or his heirs.

(*a*) Where the debt for which the property was hypothecated, was that of the donor?

(*b*) Where it was that of a third person?

Indicate the difference, if any, in the recourse of such donee, accordingly as he is a universal donee, a donee by general title, or a particular donee.

What recourse, if any, has the particular legatee who pays a debt for which the property bequeathed him is hypothecated, and to what extent, if any, is that recourse affected by the facts that such indebtedness is that of

the testator or that of a third person, or that its existence is known or unknown to the testator?

4. What conditions are permitted in gifts *inter vivos* made in contracts of marriage, which are prohibited in gifts not so made?

To what extent, by whom and to whom may gifts of future property be made in such contracts and what is the effect of such gifts?

5. By his last will A., who dies leaving surviving him three children, makes no disposition in their favor, but provides that from and after their death, his entire property shall pass to their children, who shall share in it by roots.

What rights, if any, have the testator's children in his succession?

What is the nature, and what the effect of the disposition in favor of the testator's grand-children?

To whom would the property pass on the event of the testators children dying—one of them leaving no descendants one of them leaving children and one leaving no children, but only grand children?

Reasons for your answers.

6. Point out the differences, if any, between the causes which exclude an heir from an abintestate succession for unworthiness, those which justify the revocation of a legacy by reason of misconduct of the legatee, and those which give rise to the revocation of a gift by reason of the ingratitude of the donee.

7. What right upon the property of the succession have the creditors of the deceased, as against those of the heir-at-law, or those of the universal legatee, or legatee by general title?

What right have the creditors of a donor upon the property given by universal donation, or donation by general title, as against those of the donee?

What means does the law afford for the protection of any such rights?

8. A. dies leaving three children. By his will he bequeathes a house to one of these children, and a sum of $10,000 to another. He makes no disposition as to the residue of his property. To whom does that residue pass?

If the two children, to whom the legacies above mentioned were made, have any right in such residue, how would their rights to such legacies be thereby affected?

Had the objects above mentioned been given by donation *inter vivos*, instead of by will, to said children, how would their rights to the objects given be affected by their subsequently coming to the succession of the donor? Point out the differences, if any, which would exist between the position of the donee of the immoveable and that of the donee of the sum of money.

9. A., by a firstly made will, bequeathes all his property to B.
By a second will he bequeathes his estates to C.
C. renounces the succession. To whom does it pass?
To whom would it have passed had the second will been null for defect of form?
Reason for your answer.

10. A. desiring to make an authentic will, sends for a Notary. The latter sends his clerk, accompanied by two witnesses, to take the instructions of the testator, intending to follow himself and complete the instrument. The clerk writes out the will under the instruction of the testator, who signs it, declaring it to be his will in the presence of the witnesses, who also sign. Before the arrival of the notary the testator dies.
Is the will void or valid. Reason for your answer.

FINAL EXAMINATIONS.

REAL PROPERTY LAW.

MONDAY, APRIL 15TH:—AFTERNOON, 3 TO 6.

1. What are the general effects of ownership?

When is it said to be complete?

Give an example of incomplete or imperfect ownership. In what respect does this imperfection diminish the rights of the owner?

2. A, by his will, gives the usufruct of his moveable property to A, of his immoveable property to B, during their respective lives, and the ownership of his whole estate to C. The estate consists of furniture, lands and houses, there is no money to pay the debts amounting to $2,000. How are these debts to be paid?

3. A leases an immoveable to B for 20 years at an annual rental payable quarterly, and in consideration of certain improvements which B is to make.

What is the name of this contract?

A quarter's rent being unpaid can A take an action to cancel?

The above *data* remaining the same, what clauses would alter the nature of the contract?

4. B, a proprietor of land on both sides of a stream, neither navigable nor floatable, having built a dam for the operation of a mill, floods the lands and damages the water power of A, who is above him on the same stream. Has he a right to do this?

5. How would you register the legal hypothec of a minor?
What would such hypothec secure?
Who are bound to effect this registration, and what is the extent of their responsibility?

6. How does a judicial hypothec arise? Such a hypothec has been registered against an immoveable recently sold by the Defendant. What is the effect of such registration, (*a*) if made before, (*b*) if made after the registration of the deed of sale granted by the Defendant?

7. What would be the effect of a seizure of such property on such judgment?

8. Can an unpaid vendor cancel the deed of sale of land for non-payment of the price? What change has the Code introduced?

9. A has sold to B, with legal warranty, a property upon which there are claims which B has not assumed. B has not paid the whole price.
A asks B to pay the balance of price; what is B to do?
What are B's rights prior to A's demand?

10. A has purchased at a sheriff's sale a property seized as belonging to B, and has paid the price which has been distributed. He learns that B was only an Emphyteutic lessee. What are A's rights?

FINAL EXAMINATIONS.

MARRIAGE COVENANTS—PRESCRIPTION—LEASE AND HIRE, MINOR CONTRACTS—MUNICIPAL LAWS.

WEDNESDAY, APRIL 3RD, 1901:—3 TO 6 P.M.

1. How are marriage covenants formed? *Quid*, of changes made before marriage? After marriage?

2. What things fall into the Community? What things do not? What are the liabilities of the Community?

3. A succession composed partly of moveables and partly of immoveables, devolves to the wife, and is accepted by her with the authorization of the husband. No inventory of the moveable property is made.

Upon what property can the creditors of such succession recover their claims?

Quid, of a succession composed of immoveables only, accepted with same authorization?

State reasons in each case.

4. What is interruption of prescription? How is it effected?

What prescription runs after interruption?

Suspension of prescription?

What causes suspend the course of prescription?

5. Peter acquired a promissory note made by Paul for $1,000, due 1st January, 1880. In December, 1884, Peter purchased an immoveable hypothecated in favor of Paul for $800, due 1st January, 1884, and obliged himself in the deed of sale to pay the same to Paul. Ten years later Paul, who had accepted the delegation of payment, brings suit against Peter to recover said sum of $800.

Can the latter set up, by way of Compensation, his claim resulting from the note of $1,000, the prescription of which was acquired on the 4th January, 1885?

If so, explain why?

6 What are the essential elements required in the prescription of 10 years by subsequent purchasers?

What prescription will apply if the same have been renounced or interrupted?

7. A. holds a house acquired by sale from B. C., the real owner, alleging such occupation by A., claims the rent from the latter, in a summary way, considering such holding as a lease. Can he recover such rent?

Give reasons in support of your opinion?

8. Upon whose head can a life rent be constituted? For what term? *Quid*, if it be constituted upon the life of a person dangerously ill at the time of the contract?

What are the rights of the creditor when an immoveable hypothecated to secure the payment of a life rent is sold by forced sale?

9. Describe the organization of local and County Councils.

How are the members thereof appointed? How and at the instance of whom can such appointment be set aside?

10. What persons are bound to accept municipal offices? Are exempt from the same? Are disqualified for municipal offices? For the office of Councillor? For the office of Mayor?

FINAL EXAMINATIONS.

INTERNATIONAL LAW (PUBLIC AND PRIVATE).

WEDNESDAY, APRIL 17TH, 1901:—3 TO 6 P.M.

1. Discuss the international status of the Congo Free State; the Principality of Monaco; the Transvaal before the present war.

2. Give a sketch of the British American Fisheries question.

3. Discuss the legitimacy of a pacific blockade, and enumerate the principal rules sanctioned by modern practice.

4. What is the effect of the cessation of hostile occupation upon political, judicial and administrative acts done by the invador during his occupation?

5. Is a neutral bound to prevent its subjects from
(*a*) trading with the belligerents,
(*b*) blockade-running,
(*c*) making loans to a belligerent government,
(*d*) engaging abroad in the service of a belligerent?

6. Can a debtor be validly arrested in the Province of Quebec under a writ of *capias ad respondendum* for secreting his property abroad? Cite the leading cases on the subject.

7. What is the effect in this province of a discharge in bankruptcy obtained.
(*a*) in England,
(*b*) in any other country,

8. A donation of a life rent was made in Havana by a person domiciled there to a married woman domiciled in the Province of Quebec and *commune en biens*. Under the Spanish law, then in force in Havana, all the property acquired by a wife, under whatsoever title, remained her private property and did not fall into community. Did this life-rent become an asset of the community?

9. Can foreign corporations ever enjoy greater rights in this province than domestic corporations?

10. A domiciled German, while temporarily in Paris, is treated by a French physician. Eighteen months later, while passing through the Province of Quebec, where he has property, he is sued by the French physician for his account. Under the law of France (C. N. 2274) a physician's claim is prescribed by one year, while under the German Civil Code it is prescribed by two years. Argue the case for the defendant.

FINAL YEAR EXAMINATION.

ROMAN LAW.

TUESDAY, APRIL 2ND:—3 TO 6 P.M.

1. Give as full an account as you can of the position and authority of the Roman jurists from the earliest to the latest times.

2. Describe the Romano-barbarian Codes.

3. Discuss the place of custom in creating and in abrogating law.

4. Explain the nature of the *dos*, and the rights of the husband and wife in it during the marriage.

5. Explain the nature and utility of the actio publiciana.

6. In the law of possession what is the effect of supervening bad faith.

7. What is meant by *brevi manu traditio*?

8. What are the chief requisites of a predical servitude?

9. Give a short account of *emphyteusis*.

10. What were the four classes of contracts in the Roman law? Explain the *causa civilis* in each class.

11. A. bequeaths his house as a legacy to B. Subsequently,

(*a*) A. makes another will in which the house is left to C., who is, however, incapable of taking;

or (*b*) A. alienates the house;

or (*c*) A. hypothecates the house;

or (*d*) A. sells the house with a right of redemption, and buys it back again before his death.

How is the legacy to B. affected in each case?

12. Explain the quarta Faleidia and the quarta legitima.

UNIVERSITY SCHOOL EXAMINATIONS.

1901.

PRELIMINARY SUBJECTS.

ENGLISH COMPOSITION.

MONDAY, JUNE 10TH:—MORNING, 11 TO 12.

Write an essay of not less than two pages on any *one* of the following subjects:

Queen Victoria.
The Woods in Spring.
My Favourite Book.

WRITING.

TUESDAY, JUNE 14TH:—AFTERNOON, 4 TO 4.15.

1. Write your name in full, the name of your school and your age.

2. Write all the letters of the alphabet in capitals, and the numerals from 1 to 20.

3. Write the following:—

Energy is never lost, but only changed in form, and whatever transformations take place, the sum total of kinetic energy and potential energy remains the same.

DICTATION.

MONDAY, JUNE 10TH:—MORNING, 10.30 TO 11.

The front part of the house presented a façade of more than sixty windows, surmounted by a formal pediment and raised upon a terrace. A wide avenue, part in gravel, part in turf, and bordered by triple alleys, ran to the great double gateways. It was impossible to look without surprise on a place that had been prepared through so many generations, had cost so many tons of minted gold, and was maintained in order by so great a company of emulous servants. And yet, of these there was no sign but the perfection of their work. The whole domain was drawn to the line and weeded

like the front plot of some suburban amateur; and I looked in vain for any belated gardner, and listened in vain for any sounds of labour. Some lowing of cattle and much calling of birds alone disturbed the stillness and even the little hamlet which clustered at the gates, appeared to hold its breath in awe of its great neighbour, like a troop of children who should have strayed into a king's anteroom.

[Note for the Presiding Examiner.—The Deputy Examiner will read the extract *three* times, the candidates writing it out during the *second* reading. The first and third readings are respectively intended to give the candidates a general idea of the character of the passage, and to guide them in punctuating. *As it is of great importance that candidates should not be left in a state of uncertainty, the Deputy Examiner will repeat, on request, any word or phrase. The Deputy Examiner will also inform the candidates that obvious attempts to make letters do double duty (e. g. to make a letter serve for e or i) will be regarded as mistakes. Full stops and semi-colons are to be indicated by the Deputy Examiner.*

ENGLISH GRAMMAR.

MONDAY, JUNE 10TH:—MORNING, 9 TO 10.30.

A

1. Analyse:
   (*a*) "Late in the night—I heard it plain,
   The cricket singing in the rain."
   (*b*) Ignorance was the talisman on which their power depended, and that talisman they had themselves broken.
   (*c*) The jury could not agree on a verdict; on that account he was acquitted.
2. Parse the words in italics in the following sentences:
   (*a*) *Clear* was the *night*—the stars *shining above.*
   (*b*) *Learning* was his *delight* for *all time.*
   (*c*) The man *whose* hat *was blown off* ran a long *way after* it.
   (*d*) *Let us rise,* and *go* and *seek* him.
3. Correct any instances of ungrammatical usage in the sentences given below giving your reasons for so doing:
   (*a*) Science's mysteries oft seem unexplainable.
   (*b*) Never was a day more hot or air impurer.
   (*c*) There was none there but you and him.
   (*d*) He says he isn't going to go for he don't want to.
   (*e*) You have drove me to the extremest limit of patience.

B

(*Answer two only of the following questions.*)

1. Define briefly with a single example of each: Proper Nouns becoming Common; Gender by Foreign Endings; Nouns having no Plural; Distributive Pronouns; Impersonal Verbs; Conjunctive Adverbs; Quasi Passive Verbs; Correlative Conjunctions.

2. Explain how the Gerund is used, and give examples showing how it can be used (*a*) in place of a noun, (*b*) instead of an Infinitive.

2. Make words out of the following suffixes: -ette, -ine, er, -ule, -ant, Give the origin and meaning of the following prefixes, and make words from them: be-, bi, bis-, ana-, dia-, cata, hypo.

4. How are adjectives classified? Can all adjectives be compared or are there exceptions? Illustrate both answers with examples.

ARITHMETIC.

TUESDAY, JUNE 11TH:—MORNING, 9 TO 10.30.

(*Candidates will answer only two of the three questions of each section*).

Section I.

1. Find the value of:

(*a*) $\dfrac{3\frac{3}{7} \text{ of } 2\frac{1}{12}}{\frac{1}{3\frac{3}{3}} \text{ of } 8\frac{9}{14}} \div \dfrac{2\frac{1}{2} + 1\frac{2}{3}}{3\frac{2}{3} - 2\frac{1}{2}}$

(*b*) 3.125 of 1 ton 2 qrs. 14 lbs + 2.75 of 4 cwt. 3 qrs. 5 lbs.

2. If telegraph poles along a railway are erected at intervals of 60 yds. and an engine passes 25 poles per minute, find how many miles, furlongs, perches, etc., it is travelling per hour?

3. A capitalist buys a row of 16 tenements at an average price of $2,400 each. He spends $640 for permanent sidewalk in front of the property, and $1,280 upon the buildings in repairs. For how much must he rent each tenement to obtain 8 per cent. on his investment?

Section II.

4. A water-tank on the French liner *La Tourraine* is 10 metres long, 6 metres wide and 4 metres and 50 centimetres deep. (*a*) How many kilograms of water will it hold? (*b*) How many litres will it hold? (*c*) How much will it cost to cement the bottom at 10 cents per square foot?

5. A contractor engages to build a pier in 36 days and 15 men are employed to do it, working 9 hours per day, but after working 24 days only three fifths of the work is done. If three additional men be then employed, how many hours per day will they all have to work in order to complete the pier on time?

6. A town corporation acquires a rectangular field, 720 metres long and 600 metres wide, at 2,400 francs per hectar. The corporation makes two drive-ways, 6 metres wide, at right angles to each other through the centre of the field, at a cost of 2 francs per square metre. Find the price paid for the field and the cost of the drive-ways?

Section III.

7. Which is the better investment, $3\frac{1}{2}$ per cent. at 91 or 4 per cent. at 103?

(*a*) How much must a man invest in the former stock to secure an income of $700.00 per annum?

8. How much less than the true present worth will a banker give me for a note of $1,028 due 1 year 5 months hence at 5 per cent.?

9. Find:

(*a*) Simple interest on $120.00 from 17th March, 1899, to 24th May, 1901, at 4 p.c.

(*b*) Compound interest on $175.00 for $2\frac{1}{2}$ years at 6 per cent.

PRELIMINARY GEOGRAPHY.

FRIDAY, JUNE 14TH:—AFTERNOON, 2 TO 3.

(*N.B.—Answer two questions only from each group.*)

A.

1. Of what great land divisions is the world composed? Give the chief characteristics of one of these divisions.

2. Draw a map of Australia showing the various colonies with their capitals.

3. Make brief notes in explanation of the following:—Atoll; Delta; Lagoon; Latitude; Meridian; Nadir; Estuary; Typhoon; Mirage; Zone.

B.

1. Name the Provinces of the Dominion of Canada with their capitals and at least two chief towns.

2. Give the principal rivers of Europe and the countries they flow through.

3. Draw an outline map of Africa and indicate on it the possessions of European nations.

C.

1. Where and what are the following and to whom does each belong:—Canary Islands; Honolulu; Brisbane; Heligoland; Hayti; Skagway; Hong Kong; Durban; Port Arthur; Apia.

2. Give the principal exports of British Columbia? Do these exports imply any special physical features of the country?

3. (*a*) Draw a map of the Mediterranean Sea marking the principal sea-ports.

(*b*) Give the foreign possessions of the United States of America.

BRITISH AND CANADIAN HISTORY.

TUESDAY, JUNE 11TH:—MORNING, 10.30 TO 12.

A. BRITISH HISTORY.

Answer any four questions.

1. Connect each of the following events with the reign in which it occurred:

The battle of Lewes; the Conquest of Wales; the Black Death; the Execution of Sir Thomas More; Drake's Voyage round the World; the Gunpowder Plot; the Bloody Assizes; the Peace of Ryswick; the Battle of Culloden; the Cato Street Conspiracy.

2. Connect each of the following persons with *one* important historical fact:

Stephen Langton; Warwick, the "King-maker"; the Protector Somerset; Throgmorton; Strafford; Danby; the Earl of Chatham; Charles James Fox; Lord North; Lord Melbourne.

3. Give the dates of Henry VIII and name *seven* important events which occurred during his reign.

4. Explain the scope of the following measures:

Magna Charta; Walpole's Excise Bill; Catholic Emancipation; the Declaration of Indulgence; the Grand Remonstrance.

5. Name, with dates, *ten* battles which have been fought on British soil.

6. Explain the ciscumstances of:

The Pilgrimage of Grace; Raleigh's Last Voyage; the Treaty of Dover; the Battle of the Nile.

7. Sketch the growth of British power in India, 1750-1820.

B. Canadian History.

Answer any four questions.

1. Name five military operations in which the North American Indians took a leading part.

2. Name, in order of time, ten eminent Frenchmen who were connected with the history of Canada from 1608 to 1763.

3. Name, in order of time, ten eminent Englishmen, whether soldiers or civil officials, who have represented the Mother Country in Canada.

4. Name, in order of time, ten important facts in the history of Acadia and the Lower Provinces before 1867.

5. (*a*) What do you know about the origin and early history of the Hudson Bay Company?

(*b*) What do you know about the British North America Act?

6. What is meant by the term, "Two Canadas"?

Under what circumstances did the legislative union come about?

How long did it last?

What are the main political events of the period in question?

7. Sketch the history of the Red River Rebellion and of the Riel Rising of 1885.

NEW TESTAMENT HISTORY.

Friday, June 14th:—Afternoon, 3 to 4.

Two questions only to be answered from *each group*).

A.

1. Relate the circumstances which called *for* the parable of the Good Samaritan. Relate the parable in your own words.

2. Describe the interview between Christ and the rich young ruler.

3. Give the proofs of the Resurrection of Christ recorded in the New Testament.

B.

4. Name five places in Palestine intimately connected with the Life of Christ, stating one important event which happened in each place.

5. Write the Beatitudes.

6. Relate the parable of the talents. What lesson is it intended to teach.

C.

7. Relate the story of Paul's conversion.

8. Tell what you know of the founding of the Church at Corinth.

9. Write brief notes on :—Lydia, Stephen, John Mark, Barnabas, Apollos.

OPTIONAL SUBJECTS.

LATIN (*First Paper*).

WEDNESDAY, JUNE 12TH, 1901 :—9 TO 11.15 A.M.

I. LATIN GRAMMAR (Time ¾ hour).

1. Decline, marking by the usual sign all long vowels: *pater, nomen, animal, domus, unus*; and the reflexive and relative pronouns. Decline together, *agger altus, clara vox, litus longum.*

2. Give the genitive plural of *res, mus,* and the gender of *cinis, caro, laus, nox, cardo.*

3. Give the Comparative and Superlative of *brevis, pulcher, dissimilis, parvus, dexter.*

4. Write down the Latin for: twenty-one, two hundred, 2,000 paces, a mile; in the year nineteen hundred and one; three spears each, 25th.

5. Give the principal parts of *peto, iubeo, vinco, vincio, sequor, doceo, audeo.*

6. Inflect *sum* in the Future Indic. Act.; *volo* in the Imperfect Subjunctive; *eo* in the Present Subjunctive; *miror* in the Imperative.

II. LATIN PROSE COMPOSITION. (¾ hr.)

1. I shall go to Rome.

2. He said that he was well.

3. Having done this he returned home.

4. I fear that the enemy will conquer.

5. He told me this, that I might the more readily understand.

6. This they did that they might get control of all Gaul.

7. Yet some, without his consent, crossed the river by night with rafts or by fords.

8. They did not know in what direction Caesar was marching.

9. The Aquitani were nearest to Spain, from which they were separated by the Pyrenees Mountains.

10. I hope the queen will believe you.

III. TRANSLATION AT SIGHT. (¾ hr.)

Croesus rex Lydorum, et regiarum opum heres fuerat et ipse magnam potentiam et magnas divitias sibi paraverat. Itaque fama divitiarum eius non solum Asiam sed etiam Europam compleverat multique venerunt regem visum. Inter eos fuit Solon Athenienses, qui civibus suis auctor novarum legum fuerat et inter septem sapientis numerabatur. Hunc Croesus interrogavit num ipse omnium hominum felicissimus esset. Hoc Solon negavit. "Nemo enim," inquit, "ante mortem beatus est." Hoc responsum regi tum displicuit; sed post breve tempus sensit quam verum esset. Illis enim temporibus Cyrus Persarum et Medorum regnum obtinebat, et gentes propinquas victoriis eius terrebantur. Ut hunc impediret et coerceret, Croesus bellum contra eum paravit et copiis suis Cyri regnum intravit. Sed Cyrus victoriam a Lydis reportavit. Tum Croesus captivus a Cyro damnatus est ut cremaretur.

LATIN (*Second Paper.*)

TRANSLATION FROM PRESCRIBED BOOKS.

WEDNESDAY, JUNE 12TH:—11.15 TO 1.

CAESAR AND VIRGIL.

I. CAESAR.

Candidates are requested to do any two of the following sections, A, B, C, D and E.

A.

Ariovistus ad postulata Caesaris pauca respondit, de suis virtutibus multa praedicavit: transisse Rhenum sese non sua sponte, sed rogatum et arcessitum a Gallis; non sine magna spe magnisque praemiis domum propinquosque reliquisse; sedes habere in Gallia ab ipsis concessas, obsides ipsorum voluntate datos; stipendium capere iure belli, quod victores victis imponere consuerint. non sese Gallis, sed Gallos sibi bellum intulisse; omnes Galliae civitates ad se oppugnandum venisse, ac contra se castra habuisse; eas omnes copias a se uno proelio fusas ac superatas esse: si iterum experiri velint, se iterum paratum esse decertare; si pace uti velint, iniquum esse de stipendio recusare, quod sua voluntate ad id tempus pependerint.

(Book I.)

(*a*) Write out in *direct narration* the sentence *non sese ..... superatas esse.*

(*b*) Account for the following cases: *victis, Gallis, proelio, pace, voluntate.*

B.

Hoc proelio facto et prope ad internecionem gente ac nomine Nerviorum redacto, maiores natu, quos una cum pueris mulieribusque in aestuaria ac paludes collectos dixeramus, hac pugna nuntiata, cum victoribus nihil impeditum, victis nihil tutum arbitrarentur, omnium, qui supererant, consensu legatos ad Caesarem miserunt seque ei dedi derunt; et in commemoranda civitatis calamitate, ex sexcentis ad tres senatores, ex hominum milibus sexaginta vix ad quingentos, qui arma ferre possent, sese redactos esse dixerunt. Quos Caesar, ut in miseros ac supplices usus misericordia videretur, diligentissime conservavit suisque finibus atque oppidis uti iussit et finitimis imperavit, ut ab iniuria et maleficio se suosque prohiberent. (Book II.)

(*a*) Translate and account for the case, or mood and tense, of the words in italics:

(i) Monet omnes ne *biduum maneant.*

(ii) *His persuaderi* non poterat..

(iii) neque esse quidquam *negotii.*

(iv) adversis *hostibus* occurrebant.

(*b*) Explain the terms *legatus, turma, agmen novissimum, agger.*

C.

Ibi cum alii fossas *complerent,* alii multis *telis* coniectis defensores *vallo* munitionibusque depellerent, auxiliaresque, *quibus* ad pugnam non multum Crassus confidebat, lapidibus telisque subministrandis et ad aggerem *cespitibus comportandis* speciem atque opinionem pugnantium praeberent, cum item ab hostibus constanter ac non timide pugnaretur telaque ex loco superiore missa non frustra acciderent, equites, circumitis hostium castris, Crasso renuntiaverunt, non eadem esse *diligentia* ab decumana porta castra munita facilemque aditum *habere.*—(Book III.)

(*a*) Account for the case, mood and tense, of the words in italics.

(*b*) Explain the idioms *multa nocte, summas Alpes, plurimum posse,* and the term *soldurii.*

D.

Quanto erat in dies gravior atque asperior oppugnatio, et maxime quod magna parte militum confecta *vulneribus* res ad paucitatem defensorum pervenerat, tanto crebriores litterae nuntiique ad Caesarem mittebantur; quorum pars deprehensa in conspectu nostrorum militum cum cruciatu necabantur. erat unus intus Nervius

nomine Vertico, *loco* natus honesto, qui a prima obsidione ad Ciceronem perfugerat suamque ei fidem praestiterat. hic *servo spe* libertatis magnisque persuadet praemiis, ut litteras ad Caesarem *deferat*. has ille in iaculo illigatas effert et Gallus inter Gallos sine ulla suspicione versatus ad Caesarem pervenit. *ab eo* de periculis Ciceronis legionisque cognoscitur.—(Book V.)

(*a*) Account for the syntactical construction of all words printed in italics.

(*b*) Explain the terms *sarcina, vineae, legio.*

E.

Interim confecta frumentatione milites nostri clamorem exaudiunt: praecurrunt equites; quanto sit res in periculo, cognoscunt. hic vero nulla munitio est, quae perterritos recipiat: modo conscripti atque usus militaris imperiti ad tribunum militum centurionesque ora convertunt: quid ab his praecipiatur, exspectant. nemo est tam fortis, quin rei novitate perturbetur. barbari signa procul conspicati oppugnatione desistunt: redisse primo legiones credunt, quas longius discessisse ex captivis cognoverant; postea despecta paucitate ex omnibus partibus impetum faciunt. calones in proximum tumulum procurrunt; hinc celeriter deiecti se in signa manipulosque coniciunt: eo magis timidos perterrent milites.—(Book VI.

(*a*) Explain the construction of *sit, recipiat, perturbetur, oppugnatione, redisse, quas, paucitate, eo.*

II. Virgil.

Candidates are requested to do either A or B.

A.

Et iam finis erat, cum Iupiter, aethere summo
despiciens mare velivolum, terrasque iacentis,
litoraque, et latos populos, sic vertice caeli
constitit, et Libyae defixit lumina regnis.
Atque illum, talis iactantem pectore curas,
tristior et lacrimis oculos suffusa nitentis,
alloquitur Venus: O qui res hominumque deumque
aeternis regis imperiis, et fulmine terres,
quid meus Aeneas in te committere tantum,
quid Troes potuere, quibus, tot funera passis,
cunctus ob Italiam terrarum clauditur orbis?

—Aen. I.

(*a*) Account for the case of *oculos, deum, quibus, terrarum.*

(*b*) Scan the first two lines.

(*c*) Translate and explain the words in following expressions:

(i) veteris memor *Saturnia* belli.

(ii) ducit *Amazonidum lunatis* agmina peltis.

(iii) quem alma Venus *Phrygii* genuit Simoentis ad undam.

(iv) At *Cytherea* novas artes, nova pectore versat consilia.

(v) tres Eurus ab alto in brevia et *Syrtes* urget..

B.

At non ille, satum quo te mentiris, Achilles
talis in hoste fuit Priamo, sed iura fidemque
supplicis erubuit, corpusque exsangue sepulcro
reddidit Hectoreum, meque in mea regna remisit.
Sic fatus senior, telumque imbelle sine ictu
coniecit, rauco quod protinus aere repulsum,
et summo clipei nequidquam umbone pependit.
Cui Pyrrhus: Referes ergo haec, et nuntius ibis
Pelidae genitori; illi mea tristia facta
degeneremque Neoptolemum narrare memento.
Nunc morere. —AEn. II.

(*a*) Scan the first two lines.

(*b*) Translate and account for the case of words in italics:

(i) Huc delecta *virum* sortiti corpora furtim includun
caeco *lateri*.

(ii) Eripui, fateor, *leto* me.

(iii) ardentes *oculos* suffecti sanguine.

(iv) Una salus *victis* nullam sperare salutem.

(*c*) Write a brief note on the following words or phrases:—*Ves
tibulum, adytum, palladium, oracula Phoebi, Pelopea moenia.*

GREEK GRAMMAR AND COMPOSITION.

FRIDAY, JUNE 14TH:—MORNING, 10.30 TO 1.

I.

(*a*) Give Acc. Sing;—Dat. Sing.—Acc. Plur. of: *σωτήρ
νεώς. βασιλεύς. χάρις. δόρυ.*

(*b*) Give Comparative and Superlative of *ἀληθής, σώφ
ρων, ἐχθρός, ῥᾴδιος.*

(*c*) Give 2nd Sing. Imperfect Ind. Mid.—1st Plur. Aor
Ind. Act.:—Dat. Plur. Fem. Aor. Part. Pass: —2nd Plur
Fut. Ind. Act.:—3rd Plur. Pres. Opt. Act.:—Perf. Inf

Pass. of πλέκω, τρέφω, νικάω, αἱρέω, καθίστημι, λαμβάνω, ὁράω. (Give contracted forms only, where these exist).

(*d*) Give formulae for contraction of verbs in—*όω* and —*έω*, with examples.

(*e*) Give principal parts of: δείκνυμι, εὑρίσκω, σφάλλω, λαγχάνω, βάλλω, ἁμαρτάνω, διδάσκω.

II.

Translate

(i) A Lacedaemonian is here with three horses.

(ii) On account of this the soldiers wished to cease from the war.

(iii) They marched through the country towards the city without any one hindering them.

(iv) Who will inform us where the enemy's cavalry have gone to

(v) The ambassadors urged the general to offer the same present to each

(vi) We shall fight for our country, but no one shall ever persuade us to bring a tyrant to Athens.

III.

Translate into English;

Πρέσβεις ἦκον παρὰ βασιλέως χρυσίον κομίζοντες, βουλόμενοι δωροδοκῆσαι τὸν Ἐπαμεινώνδαν. Ὁ δὲ αὐτοὺς εἰς ἄριστον εἰσεδέξατο· ᾔδει γὰρ ἐφ' ᾧ τινι ἦκον. Καὶ ἐκέλευσεν αὐτοὺς πρότερον ἀριστᾶν, εἶτα λέγειν περὶ ὅτου βούλοιντο. Παρακειμένης δὲ τραπέζης φαύλης, καὶ ὀξίνην ἔπινον. Οἱ μὲν οὖν οὐκ εἶχον ὅ τι καὶ εἴποιεν ἐπὶ τούτοις· ὁ δὲ διαμειδιάσας, Ἅπιτε, ἔφη, καὶ λέγετε τῷ δεσπότῃ τῷ ὑμετέρῳ, οἷα ἄριστα ἀριστῶ· καὶ συνήσει, ὡς ἔγωγ' οὐκ ἂν προδοίην τι, ὁ τούτοις ἀρκούμενος.

GREEK.

XENOPHON, ANABASIS I.

FRIDAY, JUNE 14TH :—MORNING, 9 TO 10.30.

Translate, explaining the construction of words underlined :

(*a*) ὁ δὲ Κῦρος ὑπολαβὼν τοὺς φεύγοντας συλλέξας στράτευμα ἐπολιόρκει Μίλητον καὶ κατὰ γῆν καὶ κατὰ θάλατταν καὶ ἐπειρᾶτο κατάγειν τοὺς ἐκπεπτωκότας. καὶ αὕτη αὖ ἄλλη πρόφασις ἦν αὐτῷ τοῦ ἀθροίζειν στράτευμα. πρὸς δὲ βασιλέα πέμπων ἠξίου ἀδελφὸς ὢν αὐτοῦ δοθῆναι οἱ ταύτας τὰς πόλεις μᾶλλον ἢ Τισσαφέρνην ἄρχειν αὐτῶν.

(*b*) ἅπαν δὲ τὸ μέσον τῶν τειχῶν ἦσαν στάδιοι τρεῖς· καὶ παρελθεῖν οὐκ ἦν βίᾳ· ἦν γὰρ ἡ πάροδος στενὴ καὶ τὰ τείχη εἰς τὴν θάλατταν καθήκοντα, ὕπερθεν δ' ἦσαν πέτραι ἠλίβατοι· ἐπὶ δέ τοῖς τείχεσιν ἀμφοτέρουις ἐφειστήκεσαν πύλαι. ταύτης ἕνεκα τῆς παρόδου Κῦρος τὰς ναῦς μετεπέμψατο, ὅπως ὁπλίτας ἀποβιβάσειεν εἴσω καὶ ἔξω τῶν πυλῶν καὶ βιασάμενοι τοὺς πολεμίους παρέλθοιεν, εἰ φυλάττοιεν ἐπὶ ταῖς Συρίαις πύλαις.

(*c*) ἐκ τούτου πάλιν ἠρώτησεν ὁ Κῦρος· Ἔτι οὖν ἂν γένοιο τῷ ἐμῷ ἀδελφῷ πολέμιος, ἐμοὶ δὲ φίλος καὶ πιστός; ὁ δὲ ἀπεκρίνατο ὅτι οὐδ' εἰ γενοίμην, ὦ Κῦρε, σοί γ' ἄν ποτε ἔτι δόξαιμι. Κλέαρχος δὲ εἶπε τάδε· Συμβουλεύω γὼ τὸν ἄνδρα τοῦτον ἐκποδὼν ποιεῖσθαι ὡς τάχιστα, ὡς μηκέτι δέῃ τοῦτον φυλάττεσθαι, ἀλλὰ σχολὴ ᾖ ἡμῖν τὸ κατὰ τοῦτον εἶναι τοὺς ἐθελοντὰς φίλους τούτους εὖ ποιεῖν.

(*d*) ἦν δ' ἡμεῖς νικήσωμεν ἡμᾶς δεῖ τοὺς ἡμετέρους φίλους τούτων ἐγκρατεῖς ποιῆσαι. ὥστε οὐ τοῦτο δέδοικα, μὴ οὐκ ἔχω ὅ, τι, δῶ ἑκάστῳ τῶν φιλων, ἂν εὖ γένηται, ἀλλὰ μὴ οὐκ ἔχω ἱκανούς, οἷς δῶ.

(*e*) καὶ γὰρ ᾔδει αὐτὸν ὅτι μέσον ἔχοι τοῦ Περσικοῦ στρατεύματος. καὶ πάντες δ' οἱ τῶν βαρβάρων ἄρχοντες τοῦ μέσον ἔχοντες τὸ αὑτῶν ἡγοῦνται, νομίζοντες οὕτω καὶ ἐν ἀσφαλεστάτῳ εἶναι, ἢν ᾖ ἡ ἰσχὺς αὐτῶν ἑκατέρωθεν, καὶ εἴ τι παραγγεῖλαι χρῄζοιεν, ἥμισει ἂν χρόνῳ αἰσθάνεσθαι τὸ στράτευμα.

(*f*) ἐπεὶ δ' ᾔσθοντο οἱ μὲν Ἕλληνες, ὅτι βασιλεὺς σὺν τῷ στρατεύματι ἐν τοῖς σκευοφόροις εἴη, βασιλεὺς δ' αὖ ἤκουσε Τισσαφέρνους, ὅτι οἱ Ἕλληνες νικῷεν τὸ καθ' αὑτοὺς καὶ εἰς τὸ πρόσθεν οἴχονται διώκοντες, ἐνταῦθα δὴ βασιλεὺς μὲν ἀθροίζει τε τοὺς ἑαυτοῦ καὶ συντάττεται, ὁ δὲ Κλέαρχος ἐβουλεύετο Πρόξενον καλέσας, πλησιαίτατος γὰρ ἦν, εἰ πέμποιέν τινας ἢ πάντες ἴοιεν ἐπὶ τὸ στρατόπεδον ἀρήξοντες.

II. Parse, giving principal parts :—ἐκπεπτωκοτας. γένοιο. δέῃ. ᾔδει. ᾔσθοντο. ἤκουσε. διώκοντες. συντάττεται πέμποιεν.

III. Write short notes on :—Πασίων. Μαρσύας.

XENOPHON, ANABASIS II.

Only for Candidates who do not write on Anabasis I.

I. Translate, explaining the construction of words underlined :—

(*a*) τὸ δὲ στράτευμα ἐπορίζετο σῖτον [καὶ ποτὸν] ὅπως ἐδύνατο ἐκ τῶν ὑποζυγίων κόπτοντες τοὺς βοῦς καὶ ὄνους. ξύλοις δ' ἐχρῶντο μικρὸν προϊόντες ἀπὸ τῆς φάλαγγος, οὗ ἡ μάχη ἐγένετο, τοῖς τε οἰστοῖς πολλοῖς οὖσιν, οὓς ἠνάγκαζον οἱ Ἕλληνες ἐκβάλλειν τοὺς αὐτομολοῦντας παρὰ βασιλέως, καὶ τοῖς γέρροις καὶ ταῖς ἀσπίσι ταῖς ξυλίναις ταῖς Αἰγυπτίαις· πολλαὶ δὲ καὶ πέλται καὶ ἄμαξαι ἦσαν φέρεσθαι ἔρημοι· οἷς πᾶσι χρώμενοι κρέα ἕψοντες ἦ̔ κείνην τὴν ἡμέραν.

(*b*) μετὰ ταῦτα ἤδη ἡλίου δύνοντος συγκαλέσας τοὺς στρατηγοὺς καὶ λοχαγοὺς ἔλεξε τοιάδε· Ἐμοί, ὦ ἄνδρες θυομένῳ ἰέναι ἐπὶ βασιλέα οὐκ ἐγίγνετο τὰ ἱερά. καὶ εἰκότως ἄρα οὐκ ἐγίγνετο· ὡς γὰρ ἐγὼ νῦν πυνθάνομαι, ἐν μέσῳ ἡμῶν καὶ βασιλέως ὁ Τίγρης ποταμός ἐστι ναυσίπορος, ὃν οὐκ ἂν δυναίμεθα ἄνευ πλοιων διαβῆναι· πλοῖα δε ἡμεῖς οὐκ ἔχομεν.

(*c*) αὐταὶ δὲ αἱ βάλανοι τῶν φοινίκων, οἵας μὲν ἐν τοῖς Ἕλλησιν ἔστιν ἰδεῖν, τοῖς οἰκέταις ἀπέκειντο, αἱ δὲ τοῖς δεσπόταις ἀποκείμεναι ἦσαν ἀπόλεκτοι, θαυμάσιαι τοῦ κάλλους καὶ μεγέθους, ἡ δὲ ὄψις ἠλέκτρου οὐδὲν διέφερε· τὰς δέ τινας ξηραίνοντες τραγήματα ἀπετίθεσαν. καὶ ἦν καὶ παρὰ πότον ἡδὺ μέν, κεφαλαλγὲς δέ. ἐνταῦθα καὶ τὸν ἐγκέφαλον τοῦ φοίνικος πρῶτον ἔφαγον οἱ στρατιῶται, καὶ οἱ πολλοὶ ἐθαύμασαν τό τε εἶδος καὶ τὴν ἰδιότητα τῆς ἡδονῆς. ἦν δὲ σφόδρα καὶ τοῦτο κεφαλαλγές.

(*d*) ὁ δὲ Κλέαρχος ἀκούσας ἐταράχθη σφόδρα καὶ ἐφοβεῖτο. νεανίσκος δέ τις τῶν παρόντων ἐννοήσας εἶπεν, ὡς οὐκ ἀκόλουθα εἴη τό τε ἐπιθήσεσθαι καὶ λύσειν τὴν γέφυραν. δῆλον γὰρ ὅτι ἐπιτιθεμένους ἢ νικᾶν δεήσει ἢ ἡττᾶσθαι. ἐὰν μὲν οὖν νικῶσι, τί δεῖ αὐτοὺς λύειν τὴν γέφυραν; οὐδὲ γὰρ ἂν πολλαὶ γέφυραι ὦσιν, ἕξομεν ἄν, ὅποι φυγόντες ἡμεῖς σωθῶμεν

(*e*) καὶ γὰρ οἶδα ἀνθρώπους ἤδη τοὺς μὲν ἐκ διαβολῆς τοὺς δὲ καὶ ἐξ ὑποψίας, οἳ φοβηθέντες ἀλλήλους, φθάσαι βουλόμενοι πρὶν παθεῖν, ἐποίησαν ἀνήκεστα κακὰ τοὺς οὔτε μέλλοντας οὔτ' αὖ βουλομένους τοιοῦτον οὐδέν. τὰς οὖν τοιαύτας ἀγνωμοσύνας νομίζων συνουσίαις μάλιστα ἂν παύεσθαι ἥκω καὶ διδάσκειν σε βούλομαι, ὡς σὺ ἡμῖν οὐκ ῥᾳθῶς ἀπιστεῖς.

(*f*) *ἱκανὸς μὲν γὰρ ὥς τις καὶ ἄλλος φροντίζειν ἦν, ὅπως ἔχοι ἡ στρατιὰ αὐτῷ τὰ ἐπιτήδεια καὶ παρασκευάζειν ταῦτα, ἱκανὸς δὲ καὶ ἐμποιῆσαι τοῖς παροῦσιν, ὡς πειστέον εἴη Κλεάρχῳ. τοῦτο δ' ἐποίει ἐκ τοῦ χαλεπὸς εἶναι· καὶ γὰρ ὁρᾶν στυγνὸς ἦν καὶ τῇ φωνῇ τραχὺς ἐκόλαζε τε ἀεὶ ἰσχυρῶς κωὶ ὀργῇ ἐνίοτε, ὡς καὶ αὐτῷ μεταμέλειν ἔσθ' ὅτε. καὶ γνώμῃ δ' ἐκόλαζεν· ἀκολάστου γὰρ στρατεύματος οὐδὲν ἡγεῖτο ὄφελος εἶναι.*

II. Parse, giving principal parts of verbs: *κόπτοντες· ἥσθιον. δύνοντος. πυνθάνομαι. ἀκούσας. ἐπιθήσεσθαι. δεήσει. φθάσαι. παθεῖν.*

III. Write short notes on *Πρόξενος.* *Μένων.*

FRENCH.

MONDAY, JUNE 10TH:—3.30 TO 5.30 P.M.

N.B.—High marks are given for Question II.

I. Translate into good English (at sight).

Il me reste à parler de Robespierre. Je ne l'ai vu qu'une seule fois Recherché dans sa toilette, frisé et poudré soigneusement, composé dans ses manières, il fournit le plus étrange contraste avec le désordre et l'affectation de malpropreté et de grossièreté qui se montraient dans les vêtements et les gestes de ses collègues. Grave dans son maintien, il ne prit presque point de part à la conversation, si ce n'est par quelques mots sentencieux. Mais malgré l'immobilité de sa pâle et sinistre figure, on s'apercevait cependant de temps à autre qu'il était mal à l'aise, et j'ai appris plus tard qu'il sut mauvais gré à Desforges de l'avoir réuni à des hommes qu'il feignait de considérer déjà comme des patriotes plus qu'incertains, ou, ce qui était encore plus coupable à ses yeux, comme des modérés. Ainsi la conversation pendant le dîner fut généralement contrainte. Je crus voir d'ailleurs, par le peu de paroles que proféra Robespierre, qu'il visait surtout à se faire distinguer comme un grand homme d'État. Il parla des relations extérieures de la France, de la nécessité de les étendre et d'un renouvellement d'alliance avec la Suisse. Il avait déjà fait sur le dernier objet quelques recherches dans le ministère, et je me rappelle que ce ne fut pas sans une sorte d'effroi que M. Colchen, qui était à la tête de la division du ministère dont les Ligues Suisses

font partie, se vit appelé dans le ministère à une conférence dont faisait partie Robespierre.

II. Translate into French (at sight) *three* of the *four* following paragraphs,

or

Translate into French any *two* of the *four* following paragraphs, *and* reproduce in French (75 to 100 words) a story to be read aloud in English by the Presiding Examiner.

(1) After having considered the question carefully and from every point of view, I have come to the conclusion that this country will never arrive at the political position to which it is entitled until the young men begin to take an interest in its government.

(2) The only man I have ever known who could read with taste and expression, was a Frenchman. The French seem to be born with a certain aptitude which our race does not possess and does not acquire. On the other hand we undoubtedly can do many things which to a Frenchman would be impossible.

(3) Whatever the matter in question may be, we ought to strive to be just one to another. Yes, we must be just, for without justice men cannot transact business with one another, cannot live, in short Had you not rather be just without seeming so than seem just without being so?

(4) Oh, I see, you intend to do the carving for the family. Please pass me the butter before you get up. Remember that one of my brothers has not appeared yet. My father likes a little piece of the breast. As for me, I have the appetite of a giant; you may give me any part of the turkey you please.

III. (1) Give the five primitive tenses (principal parts) of the following irregular verbs:—

Hate, wish (will), go, conquer, owe, sit down.

(2) Replace each of the following infinitives in italics by the proper part of the verb.

On désire que je *venir*, que tu *voir*, qu'il *pleuvoir*, que vous *savoir*, qu'ils *pouvoir*. Il faut que je *courir*, que tu *acquérir*, qu'il *mourir*, que j'*aller*, qu'il *obéir*.

(3) Distinguish briefly between *plus de* and *plus que*; *avant*, *devant* and *auparavant*.

(4) Translate into French, noting briefly syntactical peculiarities:

(*a*) I have cut my finger.

(*b*) Those children were bare-headed.

FRENCH.

Story to be reproduced in French.

N.B.—This leaflet is to be read aloud twice by the Presiding Examiner. It is not to be placed in the hands of candidates, nor read at the very outset of the examination.

One day Frederick the Great rang the bell and no one came. He opened the door and found his page asleep in an arm-chair. He went up to him and was about to awaken him, when he noticed the corner of a letter which stuck out of his pocket. He became curious to know what it was, took it and read it. It was a letter from the young man's mother who thanked him for sending her a part of his salary. When the king had read this note, he took a purse, slipped it with the letter into the pocket of the page, and returned softly to his room. Soon after he rung the bell so loud that the page was awakened and came to the king. "You have slept well!" said Frederick. The page tried to excuse himself, and in his embarrassment he put his hands into his pocket. He felt the purse, he drew it out, grew pale and looked at the king, unable to utter a single word. "What is the matter?" said the king,—"What is the matter, then?" "Ah, Sire," said the young man, throwing himself at his feet, "They wish to ruin me, I don't know what this money means which I find in my pocket."—"My friend," said Frederick, "God often sends us good things while we are sleeping; send that to your mother, and assure her that I shall take care of her and of you."

GERMAN.

THURSDAY, JUNE 13TH :—AFTERNOON, 2 TO 4.

N.B.—High marks are given for Questions III and IV.

I. Translate into English :—

(1) Wie dies die Frau sah, wurde sie auf einmal inne, dasz sie doch ein recht groszes Unrecht gethan habe, den Vogel fortzulassen, und laut weinend eilte sie in den Garten, um zu sehen, ob sie ihn vielleicht dort noch fände und haschen könnte. Und richtig, mitten auf dem Wege hüpfte und flatterte das Vögelchen; denn es konnte immer noch nicht ordentlich fliegen.

(2) Eines heiszen Sommertages also, da kein Lüftchen sich regte, kam auch einmal ein armer Handwerksbursche die Strasze daher

gewandert, dem war es in der Fremde viele Jahre hindurch weh und übel gegangen. Als er vor dem Dorfe anlangte, drehte er zum Ueberflusz noch einmal alle seine Taschen um, doch sie waren sämmtlich leer. "Was fängst du an?" dachte er bei sich. "Todmüde bist du; umsonst nimmt dich kein Wirt auf, und das Fechten ist ein beschwerliches Handwerk."

II. Translate into English (at sight).

Diese Lehre machte auf den jungen Franklin einen so tiefen Eindruck, daß er sich ihrer im Alter von 79 Jahren noch erinnerte und die Geschichte einem Sohne des erwähnten Predigers erzählte, indem er hinzusetzte: „Dieser gute Rat Ihres seligen Vaters ist mir ungemein nützlich gewesen, und noch jetzt fällt er mir gewöhnlich ein, wenn ich sehe, wie der Hochmut so gedemütigt wird und wie so mancher sich unglücklich macht, weil er die Nase zu hoch trägt."

III. Translate into German *four* of the six following sentences.

(1) A gentleman was there who had lent a guinea to a man whom he had never seen.

(2) I infer from your letter that your ship was cast on a desert island.

(3) The physician entertained the patient with stories which he had himself heard in his youth.

(4) The teacher says that we should have had a holiday, if we had done our lessons better.

(5) The general allowed the fugitive to go into the house, after he given him his word of honour.

(6) That is the fifth glass of cold water that I have drunk this morning.

IV. Translate (at sight) into German:

There was a country—and I think you have all heard of it—in which the people never worked, and only played and ate and drank and slept, and where the money was lying in the street, and clothes and watches hung upon the trees as here among us the apples. But that was many, many years ago. There are still some people who are looking for that country, but they don't find it, because they are so lazy and stupid; and those who are not lazy and stupid, but industrious, have no time to look for it.

V. Give the principal parts of the German equivalents for the following verbs: *help, hold, suffer, read, measure, shoot, steal, stand.*

VI. (1) How do you form the imperfect subjunctive of strong verbs?

(2) Decline *wer, was, der Bauer, der Kranz, etwas Gutes,* the indefinite pronoun *man.*

(3) *Wir lieben uns*—Remove the ambiguity.

(4) Form noun compounds from *der Drucker, breit, der Mord, das Land, klein.*

(5) State the chief differences between the classes of compound verbs represented respectively by *begehen* and *ausgehen.*

OPTIONAL ARITHMETIC.

TUESDAY, JUNE 18TH:—AFTERNOON, 2 TO 3.30.

1. Simplify, giving the answer in decimals:

$$\frac{.\dot{3} \text{ of } \frac{5}{6}}{5 \times .1} + \frac{.3\dot{5}}{.0\dot{8}}$$

2. Determine the present value at 4 p.c. compound interest of an annuity of £100 payable for 3 years, the first payment being due in a year's time.

3. The rate of exchange between England and Turkey is 51 shillings for 5 ducats and between England and France 8s 6d for $10\frac{1}{2}$ francs; find the value of 126 francs in ducats.

4. The map of a country is drawn on a scale of $\frac{1}{10}$ of an inch to a mile. What area on the map will represent 4,000 acres?

5. A cube of lead whose edge is 10 inches is wholly immersed in a cylindrical tub partly filled with water whose diameter is 18 inches; how much will it raise the water in the tub?

6. A number of men can be formed either into a solid square or into a hollow square, 9 deep, having 970 men in the front rank of each side. How many men are there in each side of the solid square?

GEOMETRY.

TUESDAY, JUNE 11TH:—AFTERNOON, 2 TO 4.

1. Describe a triangle having its sides equal to three given straight lines, any two of which are together greater than the third.

2. Give the enunciations of the three propositions in the first book of Euclid which prove the identical equality of two triangles.

(*a*) ABC is a triangle in which the vertical angle BAC is bisected by the straight line AX; from B a line BD is drawn perpendicular to AX and produced to meet AC (produced if necessary) in E. Shew that BD is equal to DE.

3. If the square on one side of a triangle be equal to the sum of the squares described on the other two sides, then the angle contained by these two sides shall be a right angle.

(*a*) Prove that if two right-angled triangles have the hypotenuse of the one equal to the hypotenuse of the other and also one of the sides containing the right angle in the one equal to one of the sides containing the right angle in the other, then the triangles are equal in all respects.

4. Divide a given straight line into two parts so that the square on one part may be equal to the rectangle contained by the whole line and the other part.

5. If a straight line drawn through the centre of a circle bisects a chord which does not pass through the centre, it shall cut it at right angles.

(*a*) Through a given point within a circle draw a chord which shall be bisected at that point.

6. If a straight line touch a circle and from the point of contact a chord be drawn, the angles which this chord makes with the tangent shall be equal to the angles in the alternate segments of the circle.

State the converse of this proposition.

7. If from a point without a circle there be drawn two straight lines, one of which cuts the circle and the other meets it, and if the rectangle contained by the whole line which cuts the circle and the part of it without the circle be equal to the square on the line which meets the circle, then the line which meets the circle shall be a tangent to it.

ALGEBRA.

MONDAY, JUNE 10TH :—AFTERNOON, 2 TO 3.30.

1. Solve the following equations:

(*a*) $$\frac{4x+3}{9} = \frac{8x+19}{18} - \frac{7x-29}{5x-12}.$$

(*b*) $$\begin{cases} 2x - \dfrac{y-3}{5} = 4 \\ 3y = 9 - \dfrac{x-2}{3} \end{cases}$$

(c) $\dfrac{3x-2}{2x-3} = \dfrac{5x}{x+4} - 2$

(d) $\begin{cases} x+y=9 \\ x^2+xy+y^2=61. \end{cases}$

2. Find the elementary factors of

(a) $x^3 - x^2 + x - 1$.

(b) $x^2 - 13xy + 40y^2$.

(c) $5x^2y^2 - 6xy - 8$.

(d) $x^2 + 4a^2 - b^2 - y^2 - 4ax + 2by$.

(e) $x^6 - y^6$.

3. Simplify

(a) $\left(\dfrac{x}{1+\dfrac{1}{x}} + 1 - \dfrac{1}{x+1}\right) \div \left(\dfrac{x}{1-\dfrac{1}{x}} - x - \dfrac{1}{x-1}\right)$.

(b) $\dfrac{\sqrt{a+x} + \sqrt{a-x}}{\sqrt{a+x} - \sqrt{a-x}}$.

4. A fishing rod consists of two parts; the length of the upper part is to the length of the lower part as 5 to 7; and 9 times the upper part together with 13 times the lower part exceed 11 times the whole rod by 36 inches; find the length of the two parts.

5. What is a surd? What are similar surds? Find the value of

$$2\sqrt[3]{189} + 3\sqrt[3]{875} - 7\sqrt[3]{56}$$

Write down the square of

$$a^{\frac{2}{3}} - 2a^{-\frac{1}{3}} + 3 - 2a^{-\frac{1}{3}} + a^{-\frac{2}{3}}$$

6. A regiment was marching in regular column with 5 men more in depth than in front; but, on the enemy approaching, the front was increased by 845 men and the whole was thus drawn up in 5 lines: find the number of men in the regiment.

GEOMETRY AND ALGEBRA, PART II.

THURSDAY, JUNE 13TH:—MORNING, 9 TO 11.

1. Inscribe a regular hexagon in a circle.

2. Inscribe a square in a circle.

Prove that the square circumscribing a circle is equal to twice the inscribed square.

3. In any right-angled triangle the rectilineal figure described on the hypotenuse is equal to the sum of the two similar and similarly described figures or the sides containing the right angle.

4. Find a mean proportion to two given straight lines.

5. If A, G, H, be the arithmetic, geometric and harmonic means below a and b, prove that they are in geometrical progression.

6. How many numbers between 3,000 and 4,000 can be made with the digits 9, 3, 4, 6.

7. Prove (1) $\log mn = \log m + \log n$.

(2) $\log \frac{m}{n} = \log m - \log n$.

(3) $\log m^n = n \log m$.

8. Expand by the Binomial Theorem.

(1) $\left(2 - \frac{x}{2}\right)^6$.

(2) $(1+3x)^{-4}$ to 4 terms.

TRIGONOMETRY.

TUESDAY, JUNE 11TH :—4 TO 5.30.

1. Express all the trigonometrical ratios in terms of the sine.

2. Prove that the unit of circular measure is equal to $\frac{180}{\pi}$ degrees.

3. Prove (*a*) $\cos A = \sin (90 - A)$

(*b*) $\cos (180 - A) = -\cos A$

(*c*) $\tan (180 + A) = \tan A$

4. Prove the following:—

(*a*) $\sin (A + B) \equiv \sin A \cos B + \cos A \sin B$.

(*b*) $\sin A + \sin B \equiv 2 \sin \frac{A + B}{2} \cos \frac{A - B}{2}$,

(*c*) $\sin 75° = \frac{\sqrt{3} + 1}{2\sqrt{2}}$,

(*d*) $\sin 50° + \sin 40° = \sqrt{2} \cos 5°$.

5. Find the values of x (less than 360°) which shows the equation: $\sin x \tan x = 3 \cos x$.

6. Show that $2 \cos^2 A = 1 + \cos 2A$, and hence that $\cos 45° = \frac{1}{2}\sqrt{2}$, and that $\cos 22° 30' = \frac{1}{2}\sqrt{2 + \sqrt{2}}$.

ENGLISH LANGUAGE.

TUESDAY, JUNE 18TH.—MORNING, 10.30 TO 12.30.

1. Give the substance of what Trench says concerning English History, as illustrated in words.

2. Write on :—

(*a*) Poetry as embodied in the names of places.

(*b*) The appearance of new words in a language.

3. Make brief notes concerning the following :—Franks ; mammetry ; humanitas ; miscreant ; Gothic ; cosmopolite ; legend ; mob ; astrology ; stock.

4. Discuss the question of Phonetic spelling in connection with the English language, and enforce your arguments by examples.

5. "In order to get the full sense of a word we should first present to our minds the visual image that forms its primary meaning." Illustrate what is meant by this sentence.

6. Distinguish between Strong and Weak Verbs, noticing any special peculiarities as to origin and form. Classify the following verbs, and give their principal parts :—*grind ; slide ; bereave ; crow ; clothe ; gird.*

7. Define Prepositions according to use, and also as to origin. How would you distinguish between the same word used as a Preposition and used as an Adverb? Give examples of each use in the case of the word *within*.

8. Comment on the following sentences, noticing particularly the words in italics, and correcting any mistakes in grammar you may perceive :

(*a*) That bell both *rings* and *sounds harshly*.

(*b*) He's *gone* and *done* it *bad*.

(*c*) "I love them no longer, I love *alone*
The *lovely*, the *graceful*, the *pure*."

(*d*) "The king had no *port to friend* him."

(*e*) Just as he was *going to go* the villain struck him *down*.

9. Define the following terms, giving examples :—Diphthong ; Inflexion ; Abstract Noun ; Notional Verb ; Elliptical Sentence ; Accidence ; Co-ordinating Conjunction ; Hybrid.

10. Analyse :—

"Thy crowded ports,
Where rising masts an endless prospect yield,
With labour burn, and echo to the shouts
Of hurried sailor, as he hearty waves
His last adieu, and loosening every sheet,
Resigns the spreading vessel to the wind."

ENGLISH LITERATURE.

THURSDAY, JUNE 13TH:—MORNING, 11 TO 12.30.

Candidates for A A will answer three groups: A *or* B, C and D.
Candidates for Matriculation only, two groups: A *or* B and C.
Ontario Candidates two: A *or* B *or* C and *E*.

A—TENNYSON.

1. What special qualities characteristic of Tennyson's poetry do you find illustrated in (*a*) *Dora*, (*b*) *The Lotos Eaters*, (*c*) *Recollections of the Arabian Nights*?

2. Write an outline of the story of *The Revenge*.

3. Make notes on the following, and say in what poem each quotation is found :

(*a*) The dim curls kindle into sunny rings.
(*b*) A red cross knight forever kneeled
To a lady in his shield.
(*c*) The gods themselves cannot recall their gifts.
(*d*) O fall'n at length that tower of strength
Which stood four-square to all the winds that blow.
(*e*) Time driveth onward fast,
And in a little while our lips are dumb.

B—SCOTT.

1. (*a*) Write on Scott's power in painting scenery. (*b*) In delineation of character. Illustrate by quotation or reference.

2. Cite passages in Lady of the Lake which illustrate (*a*) Highland hospitality, (*b*) Highland superstition, (*c*) The feeling of the clan for the chief.

3. Explain the meaning of the italicized words in the following quotations:

(*a*) *Beshrew* you nimble deer.

(*b*) This morn a couch was *pull'd* for you.

(*c*) For *Tine-man* forged by fairy lore.

(*d*) Still is the *canna's* hoary beard.

(*e*) Nor my plain temper, *glozing* words.

(*f*) There like the hunted *quarry* dwell

(*g*) Fleet fool in the *correi*.

(*h*) Sage counsel in *cumber*.

(*i*) Which *snooded* maiden would not bear.

(*k*) That graced the sable *'strath* with green.

C—SHAKSPERE.

1. Give in outline any *one* act of the play, King Richard II.

2. By what character are each of the following extracts spoken and to whom do they refer:

(*a*) A loyal, just and upright gentleman.

(*b*) Though banish'd, yet a true born Englishman.

(*c*) In war was never lion raged more fierce.
In peace was never gentle lamb more mild.

(*d*) I see thy glory like a shooting star
Fall to the base earth from the firmament.

(*e*) As dissolute as desperate; yet through both
I see some spark of better hope.

3 Explain the meaning of italicized words in the following:

(*a*) The Commons hath he *pill'd* with grievous taxes.

(*b*) *Imp* out our drooping country's broken wing,

(*c*) *Conceit* is still derived
From some forefather grief.

(*d*) And there the *Antic* sits.

(*e*) To *ear* the land that hath some hope to grow.

(*f*) Her *knots* disordered, and her wholesome herbs swarming with caterpillars.

(*g*) Like to a tenement, or *pelting* farm.

D—Stoppord Brooke or Collier.

(*Answer three questions only.*)

1. Connect one important work with each of the following names, and give approximate dates of production :

John Wycliffe; Sir Thomas More; Sir Walter Raleigh; John Locke; Edward Gibbon.

2. Give a short account of the life and works of (*a*) Francis Bacon; (*b*) John Milton.

3. Define briefly the character of the following works, and name their authors :

Canterbury Tales; Fairie Queene; The Tatler; The Rime of the Ancient Mariner; The Idylls of the King.

4. Write what you know of the life and character of Chaucer *or* of Shakspere. Give dates.

5. What are the distinguishing marks of the poetry of (*a*) Wordsworth; (*b*) Shelley; (*c*) Byron?

E—Tennyson.

(For Ontario Candidates only.)

1. What can you say of Tennyson as a writer of songs? Illustrate your points by quotation or direct reference.

2. Outline the story of Elaine, and show its connection with The Lady of Shalott.

3. Make notes on the following extracts, and say where they occur :

(*a*) Who, God-like grasps the triple forks,
And king-like, wears the crown.

(*b*) Tho' every channel of the State
Should fill and choke with golden sand.

(*c*) A Jacob's ladder falls
On greening grass.

(*d*) Three angels bear the holy grail.

(*e*) It may be we shall touch the Happy Isles.

(*f*) When the strong neighings of the wild white Horse
Set every gilded parapet shuddering.

HISTORY.

TUESDAY, JUNE 18:—MORNING, 9 TO 10.30.

Candidates will answer either A or B.

A. GREEK AND ROMAN HISTORY.

1 Name *ten* Greek cities, besides Athens, Sparta and Thebes.

2. Investigate fully the relations of Sparta with Persia.

3. Sketch the career of Philip of Macedon.

4. Make brief clear notes on: Phœnicia; Ephors; Periander; Kylon; Artemisium; the revolt of Chios; the voyage of Nearchus; Epaminondas; the Thirty Tyrants; the Peace of Nikias.

5. Sketch the contest of Patricians and Plebeians.

6. How did Rome acquire Greece, the East and Egypt.

7. Describe the character of the Roman Empire as it was under Augustus and Tiberius.

8. Make brief, clear notes on: Coriolanus; the pass of Caudium; Hamilcar Barca; the battle of the Trebbia, Marcus Cato; Agrarian Laws; Roman citizenship; the Social War; Jugurtha; Pharsalia.

B. COLLIER'S "GREAT EVENTS OF HISTORY"

1. What do you know about the various persecutions of the Christians?

2. Discuss the history of the Eastern Empire *or* the war against the Albigenses.

3. Name the leaders in each of the eight crusades.

4. Trace the rise of the Dutch Republic.

5. What are the main events of the War of the Spanish Succession?

6. Sketch the history of France 1815-1870.

7. Make brief clear notes on: the creed of Mohammedanism; Henry the Fowler; John Calvin; the battle of Rossbach; the National Convention.

PHYSICAL GEOGRAPHY.

THURSDAY, JUNE 13TH:—AFTERNOON 4 TO 5.30.

1. What are the causes of eclipses of the Sun and Moon? What phenomena are observed in a total eclipse of the Sun.

2. Distinguish between a continental and insular climate, and give examples.

3. A balloon ascends to a height of 4 miles, what indications will be observed in a barometer and thermometer carried with it, and how do you account for them?

4. What are spring and neap tides? To what are they due?

5. What do you know of the following:—geysers, delta, stalactite atolls, typhoon, moraine, aurora.

6. (*a*) Give the course and effects of the Labrador current.
(*b*) What are monsoons, and where do they blow?

7. Draw a map of Australia, and indicate the chief physical features. Mark the position of the chief gold and coal fields.

BOTANY.

MONDAY, JUNE 17TH:—MORNING, 9 TO 10.30.

1. Describe the principal kinds of simplified leaves, giving examples of each.

2. Sketch the life history of a typical Angiosperm.

3. Give an account of the changes which take place in an ovule after fertilization.

4. Discuss fully the absorption and assimilation of carbon dioxide by plants.

5. State what you know of transpiration.

6. Describe fully, giving the scientific names of the families, genera and species, two of the following plants:—

(*a*) A common willow.
(*b*) The dandelion.
(*c*) The blue-flag.

CHEMISTRY.

WEDNESDAY, JUNE 12TH :—AFTERNOON, 2 TO 3.30.

Answer two questions from each group.

I.

1. Explain the difference between chemical and physical changes, giving several examples of each.

2. How may it be shown that water is a compound and not an element? Give a sketch of the apparatus that you would employ.

3. Write an equation illustrating the changes that take place when Sal-ammoniac and Quicklime are brought together. Give the properties of the gas evolved.

II.

1. Give the names and formulæ of the Nitrogen Oxides. What law do these Oxides illustrate? Give the properties of one member of the group.

2. Distinguish between acid-forming and base-forming elements. What are the families of acid-forming elements? Give the members of each.

3. What takes place when Copper is heated with strong Sulphuric Acid? Give the equation. What are the properties of the gas evolved?

III.

1. Distinguished between oxidising and reducing agents, giving examples of each.

2. How would you obtain Iodine from Potassium Iodide? What are the properties of Iodine? What is the percentage of Iodine in Potassium Iodide? ($K = 39$, $I = 126$).

3. Give a chemical formula for any five of the following substances :— Potassium Chlorate, Calcium Hydroxide, Sodium Sulphite, Copper Nitrate Marsh Gas, Borax.

PHYSIOLOGY AND HYGIENE.

MONDAY, JUNE 17TH :—MORNING, 10.30 TO 12.

1. Tell what you know about the composition and functions of the blood.

2. Trace the course of the circulation through the heart and lungs. State the effect upon the circulation of rest, exercise, alcohol and cigarette smoking.

3. Name the digestive juices and describe briefly the action of each upon the food.

4. By what organs are waste matters removed from the blood? What may we do to assist or hinder their healthy action?

5. Write as time permits on the structure and functions of *either* the spinal cord *or* the eye.

PHYSICS.

WEDNESDAY JUNE 12TH:—AFTERNOON 3.30 TO 5.

1. Explain the meaning, with examples, of the following terms:—elasticity, viscosity, surface tension, annealing.

2. Describe the construction and action of a common bicycle pump.

(*a*) If the area of the piston is 8 square inches what force must be exerted to push down the piston when the pressure of the air in the bicycle tire is 2.5 atmospheres.

3. How would you construct a mercury barometer?

If the mercury barometer stands at 30 inches find the pressure of the atmosphere in lbs per sq. inch, given the specific gravity of mercury is 13.6 and the weight of a cubic foot of water 62.5 lbs.

4. 1 foot cube of ice floats in water. In order to completely immerse it it was found necessary to add a weight of 5.3 lbs. Find the specific gravity of ice, given 1 cubic foot of water weighs 62.5 lbs.

5. What is meant by "acceleration due to gravity."

A rifle bullet is fired horizontally 6 feet from the ground. How far will the bullet travel before it reaches the earth, assuming the bullet moves with a uniform horizontal velocity of 2,000 feet per second.

6. What is Boyle's Law, and how do you verify it?

7. What is meant by the "mechanical equivalent of heat" and how has it been determined?

DRAWING.

MONDAY, JUNE 17TH:—AFTERNOON 2 TO 5.

PART I.—(*Geometrical Drawing.*)

1. The distance between two points A and B is 2″.0 and the perpendicular distances of the points from a straight line DC are respectively 1″ and 1″.5. Draw from A and B lines meeting CD in the same point and making equal angles with it.

2. Construct an isosceles triangle, having an apex angle of 30° upon a base 1″.5 long.

3. $AB = 1''.5$; $BC = 1''.25$; $CD = 1''.0$. The angles ABC and BCD measure respectively 150° and 135°, measured on the same side. Draw the circles which contain ABC and BCD respectively and find the common tangent.

4. In a circle of 2″ radius describe a triangle having angles of 75° and 45°.

5. A circle of 1″.5 diameter rolls on one of 4″ diameter. Draw one loop of the epitrochoidal curve described by a point 0″.5 outside the rolling circle.

PART II.—(*Freehand Drawing.*)

6. Represent a cube below the level of the eye and to the left of he spectator.

7. Copy and enlarge slightly the drawing before you.

8. Make an outline drawing or a drawing in light and shade of the base of a column as it appears to you. (The drawing to be at least 4 inches wide.)

PART III.—(*Freehand and Colour.*)

9. Make a pencil drawing in light and shade of the moulding as seen from your point of view.

10. Make a drawing in water colour of the group of objects before you, taking especial care to correctly represent the colours.

NOTE.—Marks will not be given in the problems of Part II. if instruments are used in the drawing.

The object in question 8 is to be placed at a distance of four feet from the eye and resting upon a surface 1.5 ft. below the eye. The vertical face of the plinth which is to the right of the candidate is to make an angle of 60° with the line joining the eye to the centre of the object.

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